UNITED STATES MARINE CORPS
MARINE CORPS SYSTEMS COMMAND
2200 LESTER STREET
QUANTICO, VIRGINIA 22134-5010

IN REPLY REFER TO:
5720
DON-USMC-2016-005154
11 May 16

EMAILED TO: *hmccormic@adsinc.com*
ADS, Inc.
Ms. Heather McCormic
621 Lynnhaven Parkway
Suite 400
Virginia Beach, VA 23452

SUBJECT: DON-USMC-2016-005154

Dear Ms. McCormic:

This responds to your Freedom of Information Act (FOIA) request of April 6, 2016, which requests a copy of the solicitation responses of the awardee(s) of the contract dated March 29, 2016, which resulted from Solicitation M67854-16-R-5007 issued October 28, 2015.

In light of the *MCI Worldcom, Inc, v. GSA* decision, the Department of Justice Office of Information and Privacy has advised the Navy Office of the General Counsel that submitter notification in accordance with Executive Order 12,600 should be made whenever an agency receives a FOIA request for documents that contain potentially confidential information in order to obtain and consider any objections to disclosure. Therefore, in accordance with Presidential Executive Order 12,600, we allowed the submitters to review the requested documents and provide comment.

Pursuant to the aforementioned Executive Order 12,600 request, the submitters provided the Marine Corps Systems Command with proposed redactions pursuant to Exemption 5 U.S.C. § 552(b)(3), 5 U.S.C. § 552(b)(4) and 5 U.S.C. § 552 (b)(6). These submitter redactions are identified in the enclosed documents.

Specifically, FOIA Exemption 5 U.S.C. § 552(b)(3) precludes disclosure of an offeror's information if disclosure is prohibited by another statute. It is important to note that the Competition In Contracting Act of 1984 (CICA) and 10 U.S.C. § 2305(g), preclude the release of proposals and information contained within said proposals. In fact, CICA provides that "a proposal in the possession or control of [a military department] may not be made available to any person under section 552 of title 5." Id.

FOIA Exemption 5 U.S.C. § 552(b)(4) exempts from disclosure (i) voluntarily submitted commercial or financial information provided that the submitter does not "customarily" disclose the information to the public and provided that disclosure would be likely to interfere with the continued and full availability of the information to the government, or (ii) compelled information likely to cause substantial harm to the competitive position of the person from whom it was

obtained and likely to impact on the government's ability to obtain reliable information in the future. See Critical Mass Energy Project v. NRC, 975 F2d 871, 879-80 (D.C. Cir. 1992), cert. denied, 113 S.Ct. 1579 (1993); National Parks & Conservation Ass'n v. Morton, 498 F2d 765, 766 (D.C. Cir. 1974); Canadian Commercial Corp. v. Dept. of Air Force, 514 F.3d 37 (D.C. Cir., 2008).

FOIA Exemption 5 U.S.C. § 552(b)(6) exempts disclosure of information that would constitute a clearly unwarranted invasion of personal privacy.

In an effort to minimize further delay we request that you review the redactions and identify any withheld information that you wish to receive. MARCORSYSCOM will then determine whether the release of any requested information is proper under the FOIA and provide any additional releasable information in a "final release" letter. If we do not receive any notification from you, which specifically requests the release of any redacted information by October 15, 2015, this letter will become the final response and we will close this FOIA request.

As of May 11, 2016, two hours of search and review (currently billed at $44 per hour) has been expended during the processing of your request. Please remit a check or money order, payable to the Treasurer of the United States in the amount of $88.00 to: COMMANDER, ATTN LAW, MARCORSYSCOM, 2200 LESTER STREET, SUITE 120, QUANTICO VA 22134-5010.

If at any time you are not satisfied that a diligent effort was made to process your request, you may file an administrative appeal with the Assistant to the General Counsel (FOIA) at:

Department of the Navy
Office of the General Counsel
ATTN: FOIA Appeals Office
1000 Navy Pentagon Room 4E635
Washington DC 20350-1000

For consideration, the appeal must be received in that office within 60 days from the postmark of this letter's envelope. Attach a copy of this letter and a statement regarding why you believe an adequate search was not conducted. Both your appeal letter and the envelope should bear the notation "FREEDOM OF INFORMATION ACT APPEAL". Please provide a copy of any such appeal letter to the MARCORSYSCOM address above.

Any questions concerning this matter should be directed to Mrs. Bobbie Cave at (703) 432-3934 or bobbie.cave@usmc.mil.

Sincerely,

Bobbie Cave

for LISA L. BAKER
Counsel

DRS Consolidated Controls Inc.
Business Volume

Solicitation M67854-15-R-5007
MOBILE ELECTRIC HYBRID POWER SOURCES

(b) (4)

DRS Consolidated Controls, Inc.
21 South St
Danbury, Connecticut
06810

(b) (6)

14 October 2015

PUBLIC VERSION

Contents

Table of Figures

Table of Tables

Table 1 Acronyms

Acronym	Definition
A	Ampere
A/C	Air-conditioning
AAR	Association of American Railroads
AC	Alternating Current
ALSC	American Lumber Standards Committee
AMEPDIS	Advanced Mobile Electric Power Distribution
AMMPS	Advanced Medium Mobile Power System
ANSI	American National Standards Institute
ASQC	American Society for Quality Control
ASTM	American Society for Testing and Materials
ATE	Automated Test Equipment
BMS	Battery Management System
BTU	British Thermal Unit
CALS	Continuous Acquisition and Life Cycle Support
CAR	Corrective Action Report
CARC	Chemical Agent Resistant Coating
CD	Compact Disc
CDRL	Contract Data Requirements List
CD-ROM	Compact Disc Read-Only Memory
CECOM	Communications and Electronics Command
CEDV	Compensated End-of-Discharge Voltage
CHAMMPS	Combined Heating Air-conditioning Medium Mobile Power System
CID	Commercial Item Description
CLIN	Contract Line Item Number

Acronym	Definition
CMRA	Contractor Reporting Manpower Application
COPQ	Cost of Poor Quality
COTS	Commercial Off the Shelf
d/b/a	Doing Business As
DAQ	Data Acquisition
DAR	Defense Acquisition Requirement
dBA	Decibel
DC	Direct Current
DCMA	Defense Contract Management Agency
DCN	Design Change Notice
DOD	Department of Defense
DPAS	Defense Priorities and Allocations System
DPGDS	Deployable Power Generation Distribution System
DPU	Defects Per Unit
DRF	Data Requirements Form
DRS-CCI	DRS-Consolidated Controls, Inc.
DSP	Digital Signal Processor
DTS	Defense Transportation System
ECO	Engineering Change Order
ECP	Engineering Change Proposal
ECU	Environmental Control Unit
EDFP	Engineering Data For Provisioning
EMI	Electromagnetic Interference
EPA	Environmental Protection Agency
ES	Energy Storage

Acronym	Definition
ESM	Energy Storage Module or ES Module
ETM	Electronic Technical Manual
FAO	Food and Agriculture Organization
FAR	Federal Acquisition Requirement
FGC	Functional Group Code
FIAR	Failed Item Analysis Report
FMECA	Failure mode, effects, and criticality analysis
FOD	Foreign Object Damage
FTP	File Transfer Protocol
GEM	Green Energy Module
GFCI	Ground-Fault Circuit Interrupter
GFE	Government Furnished Equipment
GFI	Government Furnished Information
GPLPE	General Permit to Limit Potential to Emit
GSESD	Ground Support Equipment Selection Data
HAEMP	High Altitude Electromagnetic Pulse
HMI	Human-Machine Interface
HART	Hawaii Area Rapid Transit
HT	Heat Treated
HVIL	High Voltage Interlock
Hz	Hertz
IAW	In Accordance With
IC	Interchangeability Code
IEEE	Institute of Electrical and Electronics Engineers
IGBT	Insulated Gate Bipolar Transistor
ILS	Integrated Logistics Services

Acronym	Definition
ILSM	Integrated Logistics Support Manager
IPR	In-Process Review
ISO	International Standards Organization
ISPM	International Standards for Phytosanitary 18 Measures
ISUP	Intelligent Small Unit Power
JLTV	Joint Light Tactical Vehicle
KO	Contracting Officer
kW	Kilowatt
LED	Light Emitting Diode
LLC Converter	A specific form of resonant power converter
LoEP	List of Effective Pages
LORA	Level of Repair Analysis
LSA	Logistics Support Analysis
LSAR	Logistics Support Analysis Requirements/Report/Record
LTT	Light Tactical Trailer
LVAD	Low Velocity Air-Drop
MAC	Maintenance Allocation Chart
MPPT	Maximum Power Point Tracking
MEHPS	Mobile Electric Hybrid Power Supply
MEPDIS-R	Mobile Electric Power Distribution System Replacement systems
mg	Milligram
MHz	Megahertz
MIL-STD	Military Standard
MMAS	Materials Management and Accounting System

Acronym	Definition
MOPP IV	Mission Oriented Protective Posture IV
MPPT	Maximum Power Point Tracking
MPS	Master Production Schedule
MRP	Manufacturing Requirements Planning
MTBF	Mean Time Between Failure
NATO	North Atlantic Treaty Organization
NBCCS	Nuclear, Biological, and Chemical Contamination Survivability
NELMA	Northeastern Lumber Manufacturer's Association
NEMA	National Electrical Manufacturers Association
NHA	Next Higher Assembly
NI	Not Interchangeable
NOX	Nitric Oxide
NQA	National Quality Assurance
NSN	National Stock Number
NWPCA	National Wood Pallet and Container Association
OW	One-way
PCA	Physical Configuration Assurance
PCA	Physical Configuration Audit
PCCN	Provisioning Contract Control Number
PD	Purchase Description
PDF	Portable Document Format
PdM EPS	Product Manager Expeditionary Power Systems
PDU	Power Distribution Unit
PLISN	Provisioning Line Item Sequence Number

Acronym	Definition
PMBOK	Program Management Book of Knowledge
PMCS	Preventative Maintenance Checks and Services
PM-E2S2	Project Manager Expeditionary Energy & Sustainment Systems
PM-MEP	Project Manager – Mobile Electric Power
PN	Part Number
PNG	Portable Network Graphics
PO	Purchase Order
POC	Point of Contact
PP	Power Plant
PPL	Provisioning Parts List
PPQT	Pre-Production Qualification Test
PQT	Production Qualification Test
PV	Photo Voltaic
psia	Pounds per square inch absolute
PT	Production Test
PTD	Provisioning Technical Documentation
PVC	Polyvinylchloride
QCDS	Quality, Cost, Delivery and Safety
RCCA	Root Cause and Corrective Action
RCM	Reliability-centered maintenance
RFD	Request for Deviation
RFW	Request for Waiver
RFQ	Request for Quotation
RPSTL	Repair Parts and Special Tools
RT	Real Time

Acronym	Definition
SAE	Society of Automotive Engineers
SBC	Single Board Computer
SIOP	Sales and Inventory Operating Plan
SME	Subject Matter Expert
SOC	State of Charge
SOH	State of Health
SOW	Statement of Work
TA	Top Assembly
TDP	Technical Data Package
TIR	Test Inspection Report
TIR	Test Incident Report
TM	Technical Manual
TMDE	Test, Measurement and Diagnostic Equipment
TQG	Tactical Quiet Generator
TRC	Technology Research Corporation
TRL	Technical Readiness Level
TW	Two-way
UI	User Interface
UID	Unique Item Identifier
UN	United Nations
UOC	Usable on Code
UPS	Uninterruptible Power Supply
US	United States
V	Volt
VAC	Volts Alternating Current
VDC	Volts Direct Current

Acronym	Definition
VOC	Volatile Organic Compound
VPN	Vendor Part Number
WAWF	Wide Area Work Flow
WPM	Wood Packing Materials

October 13, 2015

MARCORSYSCOM - PG15
ATTN: Ebony Guest
2200 Lester St.
Quantico, VA 22134

Subject: DRS Consolidated Controls, Inc Response

Reference: M67854-15-R-5007 as Amended

Letter Number: DRS-2015-0693

Dear Ms. Guest,

(b) (4) (b)(3); (b)(4)

(b) (4) (b)(3); (b)(4)

(b) (4) (b)(3); (b)(4) (b) (4) (b)(3); (b)(4) (b) (4)

(b) (4) (b)(3); (b)(4)

(b) (4) (b)(3); (b)(4)

Thank you for the opportunity to make this offer.

(b) (6)

(b)(3); (b)(4)

(b) (4)

(b) (4)

(b)(3); (b)(4)

(b) (4)

(b)(3); (b)(4)

(b) (4)

(b)(3); (b)(4)

(b)(3); (b)(4)

(b) (4)

(b) (4)

(b) (4)

(b)(3); (b)(4)

(b) (4)

(b)(3); (b)(4)

(b) (4) (b)(3); (b)(4)

(b) (4) (b)(3); (b)(4)

(b) (4)

(b)(3); (b)(4)

(b) (4) (b)(3); (b)(4)

(b) (4) (b)(3); (b)(4)

(b) (4)

(b)(3); (b)(4)

PART I.

SOLICITATION, OFFER AND AWARD

1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700)	RATING	PAGE 1 OF PAGES 143

2. CONTRACT NO.	3. SOLICITATION NO.	4. TYPE OF SOLICITATION	5. DATE ISSUED	6. REQUISITION/PURCHASE NO.
	M67854-15-R-5007	[ ] SEALED BID (IFB) [X] NEGOTIATED (RFP)	28 Aug 2015	

7. ISSUED BY	CODE	8. ADDRESS OFFER TO (If other than Item 7)	CODE
MARCORSYSCOM - PG15 ATTN: EBONY GUEST 2200 LESTER ST. QUANTICO VA 22134 TEL: 703-432-3087 FAX:	M67854	See Item 7 TEL: FAX:	

NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder".

SOLICITATION

9. Sealed offers in original and 6 copies for furnishing the supplies or services in the Schedule will be received at the place specified in Item 8, or if handcarried, in the depository located in _____ until 02:00 PM (Hour) local time 15 Oct 2015 (Date)

CAUTION - LATE Submissions, Modifications, and Withdrawals: See Section L, Provision No. 52.214-7 or 52.215-1. All offers are subject to all terms and conditions contained in this solicitation.

10. FOR INFORMATION CALL:	A. NAME	B. TELEPHONE (Include area code) (NO COLLECT CALLS)	C. E-MAIL ADDRESS

11. TABLE OF CONTENTS

(X)	SEC.	DESCRIPTION	PAGE(S)	(X)	SEC.	DESCRIPTION	PAGE(S)
		PART I - THE SCHEDULE				**PART II - CONTRACT CLAUSES**	
X	A	SOLICITATION/ CONTRACT FORM	1	X	I	CONTRACT CLAUSES	42 - 53
X	B	SUPPLIES OR SERVICES AND PRICES/ COSTS	2 - 12			**PART III - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACHMENTS**	
X	C	DESCRIPTION/ SPECS./ WORK STATEMENT	13 - 26	X	J	LIST OF ATTACHMENTS	54 - 115
X	D	PACKAGING AND MARKING	27 - 32			**PART IV - REPRESENTATIONS AND INSTRUCTIONS**	
X	E	INSPECTION AND ACCEPTANCE	33 - 34	X	K	REPRESENTATIONS, CERTIFICATIONS AND OTHER STATEMENTS OF OFFERORS	116 - 126
X	F	DELIVERIES OR PERFORMANCE	35 - 37				
X	G	CONTRACT ADMINISTRATION DATA	38 - 40	X	L	INSTRS., CONDS., AND NOTICES TO OFFERORS	127 - 137
X	H	SPECIAL CONTRACT REQUIREMENTS	41	X	M	EVALUATION FACTORS FOR AWARD	138 - 143

OFFER (Must be fully completed by offeror)

NOTE: Item 12 does not apply if the solicitation includes the provisions at 52.214-16, Minimum Bid Acceptance Period.

12. In compliance with the above, the undersigned agrees, if this offer is accepted within 185 calendar days (60 calendar days unless a different period is inserted by the offeror) from the date for receipt of offers specified above, to furnish any or all items upon which prices are offered at the price set opposite each item, delivered at the designated point(s), within the time specified in the schedule.

13. DISCOUNT FOR PROMPT PAYMENT (See Section I, Clause No. 52.232-8)	None

14. ACKNOWLEDGMENT OF AMENDMENTS (The offeror acknowledges receipt of amendments to the SOLICITATION for offerors and related documents numbered and dated):	AMENDMENT NO.	DATE	AMENDMENT NO.	DATE
	0001	9/24/2015		
	0002	10/5/2015		

15A. NAME AND ADDRESS OF OFFEROR	CODE 06RP6	FACILITY	16. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER (Type or print)
DRS Consolidated Controls, Inc. 21 South Street Danbury, CT 06810			(b) (6)

15B. TELEPHONE NO (Include area code)	15C. CHECK IF REMITTANCE ADDRESS IS DIFFERENT FROM ABOVE - ENTER SUCH ADDRESS IN SCHEDULE.	18. OFFER DATE
203-798-3000	[ ]	15 October 2015

AWARD (To be completed by Government)

19. ACCEPTED AS TO ITEMS NUMBERED	20. AMOUNT	21. ACCOUNTING AND APPROPRIATION

22. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION: [ ] 10 U.S.C. 2304(c)( ) [ ] 41 U.S.C. 253(c)( )	23. SUBMIT INVOICES TO ADDRESS SHOWN IN (4 copies unless otherwise specified)	ITEM

24. ADMINISTERED BY (If other than Item 7) CODE	25. PAYMENT WILL BE MADE BY CODE

26. NAME OF CONTRACTING OFFICER (Type or print) TEL: EMAIL:	27. UNITED STATES OF AMERICA (Signature of Contracting Officer)	28. AWARD DATE

IMPORTANT - Award will be made on this Form, or on Standard Form 26, or by other authorized official written notice.

Section B - Supplies or Services and Prices

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001					(b) (4)

Design and Fabrication of MEHPS
FFP
Design and Fabrication in accordance with paragraphs 3.0, 3.1, 3.3 through 3.8, 3.11, and the Performance Specification Sheets (PSpecs) for MEHPS-L and MEHPS-M.
FOB: Destination

NET AMT (b) (4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001AA		4	Each	(b) (4)	(b) (4)

Design and Fabrication-Light MEHPS
FFP
Design and Fabrication of the Light Systems in accordance with paragraphs 3.0, 3.1, 3.3 through 3.8, and 3.11.
FOB: Destination

NET AMT (b) (4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001AB		4	Each	(b)(4)	(b)(4)

Design and Fabrication-Medium MEHPS
FFP
Design and Fabrication of the Medium Systems in accordance with paragraphs 3.0, 3.1, 3.3 through 3.8, and 3.11.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0002		1	Each	(b)(4)	(b)(4)

Testing and Verification
FFP
Testing and Verification in accordance with paragraph 3.8 of the Statement of Work.

FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003					

Contract Data Requirements List
FFP
Contract Data Requirements List
FOB: Destination

(b)(4)

NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AA		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM B001
FFP
B001 RECEIPT OF GOVERNMENT MATERIEL REPORT IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.1.1.

FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AB		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM B002
FFP
B002 GOVERNMENT FURNISHED INFORMATION DEFICIENCY REPORT IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.1.2.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AC		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM A015
FFP
A015 TECHNICAL REPORT - STUDY/SERVICES IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.9.1.1.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AD		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM A016
FFP
A016 TECHNICAL REPORT - STUDY/SERVICES IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.9.1.2.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AE		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM B003
FFP
B003 CONFERENCE AGENDA IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.2.1.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AF		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM B004
FFP
B004 CONFERENCE MINUTES IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.2.1.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AG		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM A001
FFP
A001 DESIGN REVIEW INFORMATION PACKAGE (PDR) IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.3.1.1.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AH		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM A002
FFP
A002 DESIGN REVIEW INFORMATION PACKAGE (CDR) IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.3.1.2.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AJ		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM A003
FFP
A003 DESIGN REVIEW INFORMATION PACKAGE (TRR) IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.3.1.3.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AK		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM A004
FFP
A004 TECHNICAL REPORT - STUDY SERVICES IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.3.2.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AL		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM A005
FFP
A005 PRODUCIBILITY ANALYSIS REPORT IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.4.1.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AM		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM A006
FFP
A006 SAFETY ASSESSMENT REPORT (SAR) IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.5.1.2.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AN		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM A007
FFP
A007 SYSTEM SAFETY HAZARD ANALYSIS (SSHA) REPORT IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.5.1.4.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AP		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM A008
FFP
A008 TECHNICAL REPORT-STUDY/SERVICES IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.5.1.6.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AQ		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM A009
FFP
A009 TECHNICAL REPORT - STUDY/SERVICES IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.5.1.7.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AR		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM A010
FFP
A010 TECHNICAL REPORT-STUDY/SERVICES IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.5.2.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AS		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM A011
FFP
A011 INTERFACE CONTROL DOCUMENT IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.6.1.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AT		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM A012
FFP
A012 DEVELOPMENTAL DESIGN DRAWINGS/MODELS AND ASSOCIATED LISTS IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.7.1.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AU		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM A013
FFP
A013 COMMERCIAL DRAWINGS/MODELS AND ASSOCIATED LISTS IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.7.2.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AV		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM A014
FFP
A014 PRODUCT DRAWINGS/MODELS AND ASSOCIATED LISTS IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.7.3.
FOB: Destination

NET AMT (b)(4)

Section C - Descriptions and Specifications

STATEMENT OF WORK

Statement of Work

Mobile Electric Hybrid Power Sources (MEHPS)

Prepared by

Product Manager - Expeditionary Power Systems

Marine Corps Systems Command

1.0 SCOPE

The USMC has identified a future need for Mobile Electric Hybrid Power Sources (MEHPS). This Statement of Work (SOW) defines the effort required to develop this capability for transition to production (separate contract)`. The desired attributes for this capability are defined in the associated Performance Specification (PSpec).

The contractor shall provide the requisite program management and technical effort to define, demonstrate, and deliver the stated capability. This program will be executed in a stepped fashion in order to refine the concept, layout, and eventual configuration while reducing risk.

This acquisition embraces the use of the contractor's configuration management along with the contractor's product information and documentation to the greatest extent possible.

The contractor shall be responsible to design, and deliver the items that have been proposed, accepted, and verified by the Government.

The contractor is responsible for providing all material, services, and necessary support documentation needed to complete the tasks identified in this SOW.

A key aspect of this project is the interface of the USMC family of future tactical generators with a hybrid system, and the associated means to accomplish this. The contractor shall be responsible for all interfaces between contractor selected / contractor furnished components, and any contractor selected / government furnished components.

2.0 APPLICABLE DOCUMENTS

The following documents specified form a part of this SOW to the extent specified herein. The most recent revision of the referenced document at the time of contract shall be used unless otherwise specified. The Performance Specifications in Attachment 2 identify additional applicable documents. In the event of conflict between the applicable documents and this SOW, the SOW shall take precedence. Nothing in this document supersedes applicable laws and regulations unless a specific exemption has been obtained. The following Military Standards and Specifications shall have Mandatory Compliance during this contract, where applicable.

2.1 Military Standards and Specifications - Mandatory Compliance.

MIL-STD-129	Military Marking for Shipment and Storage
MIL-STD-130	Identification Marking of U.S. Military Property
MIL-STD-882	Standard Practice for System Safety
MIL-STD-961	Defense and Program-Unique Specifications Format and Content
MIL-STD-1332	Definitions of Tactical, Prime, Precise, and Utility Terminologies for Classification of the DoD Mobile Electric Power Engine Generator Set Family
MIL-STD-1366	DoD Interface Standard for Transportability Criteria
MIL-STD-1472	Human Engineering

MIL-STD-46855	Human Engineering Requirements for Military Systems, Equipment, and Facilities

2.2 Handbooks - Guidance Only.

The following Handbooks are considered Guidance during this contract, where applicable.

MIL-HDBK-61A	Configuration Management Guidance
MIL-HDBK-217	Reliability Prediction of Electronic Equipment
MIL-HDBK-470	Designing and Developing Maintainable Products and Systems
MIL-HDBK-633	Mobile Electric Power Engine Generator Standard Family General Characteristics
MIL-HDBK-781	Reliability Test Methods, Plans, and Environments for Engineering Development, Qualification, and Production

2.3 Other Government Documents – Guidance Only.

Unless otherwise stated, the following documents may be obtained from http://www.documentservices.dla.mil/ or DLA Document Services, 5450 Carlisle Pike Bldg. 09, PO Box 2020, Mechanicsburg, PA 17055-0788.

DoDI 8500. 01	Cybersecurity
DoD 5220.22-M	National Industrial Security Program Operating Manual
NAVSEAINST 9310.1B	Naval Lithium Battery Safety Program
TM S9310-AQ-SAF-010	Technical Manual for Batteries, Navy Lithium Safety Program Responsibilities and Procedures, dated 15 July 2010

(Copies of TM S9310-AQ-SAF-010, dated 15 July 2010 are available from http://www.marcorsyscom.usmc.mil/sites/pmeps/mep_policy_documents.asp or Naval Weapons Support Center, Code 3057, Building 36, Crane, IN 47522-5060)
NAVAL SEA SYSTEMS COMMAND

SG270-BV-SAF-010	-High-Energy Storage System Safety Manual

(Copies of this document are available from Naval Weapons Support Center, Code 3057, Building 36, Crane, IN 47522-5060.)

2.4 Non-Government Documents.

ASME Y14.34	Associated Lists
ASME Y14.100	Engineering Drawing Practices

(Copies of ASME documents are available from www.asme.org or American Society of Mechanical Engineers Information Central Orders/Inquiries, P.O. Box 2300, Fairfield, NJ 07007-2300.)

EIA-649	National Consensus Standard for Configuration Management

3.0 REQUIREMENTS

The contractor shall perform all tasks required and delineated in this SOW to design, develop, integrate, test, produce prototypes, deliver and prepare associated documentation, provide test support, provide technical support, and provide system operations prior to developmental test for the MEHPS in the quantities of four (4) Light and four (4) Medium systems as specified in the contract. The contractor shall provide all materials, equipment, hard tooling, personnel, and facilities necessary to manufacture, fabricate, integrate, produce, and deliver the types and quantities of deliverables specified by the contract.

3.1 Government Furnished Property.

3.1.1 Government Furnished Equipment.
The Government Furnished Equipment (GFE) for this contract consists of military standard generators for the Light and Medium MEHPS variants and Advanced Integrated Solar Panel Case Assembly (AISPCA) as the renewable energy source. Items will be requested and shipped to the contractor upon receipt of contractor's written request to the Marine Corps Systems Command program office. The contractor shall provide for accountability, security, and storage for the GFE provided in accordance with the Government Property clauses incorporated into this contract. The contractor shall inspect and inventory all GFE received and identify and report any discrepancies/deficiencies. The Government will forward an accountability agreement to the contractor for signature on an annual basis. The Management Control Activity, Marine Corps Logistics Base (Code 827-2/MCA), Albany, Georgia, is the control and coordination point for all Marine Corps GFE.

CDRL B001, DI-MGMT-80389B, Receipt of Government Materiel Report

3.1.2 Government Furnished Information.
The Government Furnished Information (GFI) for this contract will consist of drawings and dimensions of the required railing system for the M1102 trailer mounting of the Advanced Medium Mobile Power Sources (AMMPS); as well as the specifications for the AISPCA. The Government will furnish the GFI identified in the contract upon written request from the contractor to the Marine Corps Systems Command program office. The contractor shall notify the Government of any deficiencies in the GFI received.

CDRL B002, DI-MGMT-80596, Government Furnished Information Deficiency Report

3.2 Meetings, Formal Reviews, Conferences, and Audits.

3.2.1 Contractor Responsibilities.
The contractor shall plan, host, attend, coordinate, support and conduct the meetings, formal reviews, conferences, and audits (hereinafter called "reviews"). The reviews shall be conducted at mutually agreed upon Government and contractor facilities. Reviews requiring demonstration and/or examination of equipment shall be conducted at the contractor's facility. All such reviews shall be included in the program schedule and may be held concurrently with the Government's approval. The contractor shall prepare agendas and conference presentation materials prior to each review, and provide minutes and reports following each review. The Government reserves the right to cancel any review or to require any review to be scheduled at critical points during the period of performance. Action item documentation, assignment of responsibility for completion, and due dates shall be determined prior to adjournment of all reviews. A summary of all action items, responsible parties, and estimated completion dates shall be included with the minutes. At the meeting the contractor shall provide to the Government a copy of all presented material and any referenced documents.

CDRL B003, DI-ADMN-81249A, Conference Agenda
CDRL B004, DI-ADMN-81250A, Conference Minutes

Purpose	Frequency	Locations
Start of Work Meeting	Once	Quantico VA
In Process Review	As Req	TBD
Preliminary Design Review @ 3months after contract award	Once	Contractor
Critical Design Review @ 6 months after contract award	Once	Contractor
Test Readiness Review @ 12 months after contract award	Once	Bethesda, MD

3.2.2 Start of Work Meeting.
The contractor shall attend a Start of Work meeting at the Government facility within 30 days of contract award. The purpose of this meeting is for the Government to present information on the Government team and organizational structure, invoicing information through Wide Area Work Flow (WAWF), and what is expected of the contractor during the terms of the contract. At this meeting the contractor will be provided an opportunity to ask for clarification on this SOW and the PSpec. The contractor shall present management, key personnel, and program implementation processes.

3.2.3 In-Process Review.
In Process Reviews (IPR) will be held on a quarterly basis or as needed basis, at a date and location mutually agreed upon. The Government reserves the right to cancel any review or to require any review to be scheduled during the period of performance. The contractor's progress, management, technical support services (if any), assurance of compliance with contract requirements, program status, funding, problem identification and resolutions, and actual versus expected performance of each area shall be addressed. The contractor shall prepare presentation materials providing an overview of all agenda items.

3.3 Systems Engineering.
The contractor shall establish and maintain an effective systems engineering program throughout the design, prototype, testing, and production processes.

3.3.1 Technical Reviews.
Technical reviews will be conducted in accordance with MCSCO 5400.5, Naval Systems Engineering Policy; its Enclosure 2, the Naval Systems Engineering Technical Review (SETR) Handbook; and its Enclosure 4, Land Systems Specific SETR Guidance invoking the MARCORSYSCOM Technical Review Handbook. The contractor shall respond to assigned Requests for Information (RFI) and Request for Action (RFA) generated during the technical reviews within the time period specified at the review. The contractor shall deliver to the Government all information presented and referenced at technical reviews no later than 30 days after the review.

3.3.1.1 Preliminary Design Review.
The contractor shall participate in a system level Preliminary Design Review (PDR) conducted three (3) months after contract award, unless otherwise agreed upon by the Government. At the PDR the contractor shall have all studies, estimates, analyses, designs, and reports available for the Government to review at least 15 days prior to the PDR. The PDR shall be used to resolve any issues in the PSpec; however, it will not be used as an opportunity to impose additional requirements. The PDR shall include each equipment, hardware and software configuration item, and related peculiar support equipment. The contractor shall show and/or demonstrate that evaluations of materials, lead times, tooling, fabrication techniques, assembly methods, test equipment, skills, processes, and inspection techniques have been accomplished for each equipment, hardware and software configuration item, and related support equipment; that producibility objectives have been achieved; and also shall identify all single source, sole source, and diminishing source(s). This review will evaluate the progress, technical adequacy, and risk resolution (on a technical, cost, and schedule basis) of the design and will assess the technical risk associated with the selected manufacturing (assembly) methods (processes). The contractor shall deliver to the Government all information presented and referenced at technical reviews no later than 30 days after the review. Topics the contractor shall cover at the PDR shall include, but not be limited to the following:

a. Detailed Program Plan indicating Design, Fabrication, and Test Phases
b. Electrical and mechanical design

c. Environment control and thermal design aspects
d. Electromagnetic compatibility of the preliminary design
e. Power distribution and grounding design aspects
f. Preliminary mechanical and packaging design of consoles, racks, drawers, printed circuit boards, connectors, etc.
g. ESOH engineering considerations
h. Preliminary lists of materials, parts, and processes
i. Pertinent reliability/maintainability/availability data
j. Preliminary weight data
k. Development test data
l. Corrosion prevention/control considerations
m. Transportability, packaging, and handling considerations
n. Standardization considerations
o. Trade-studies and design studies results
p. Functional flow, requirements allocation data, and schematic diagrams
q. Equipment layout drawings and preliminary drawings, including any proprietary or restricted design/process/ components and information
r. Interface requirements contained in configuration item development specifications and interface control data (e.g., interface control drawings) derived from these requirements

CDRL A001, DI-SESS-81757A, Design Review Information Package (PDR)

3.3.1.2 ***Critical Design Review.***

The contractor shall participate in a system level Critical Design Review (CDR) conducted six (6) months after contract award, unless otherwise agreed upon by the Government. At the CDR the contractor shall have all studies, estimates, analyses, designs, and reports available for the Government to review at least 15 days prior to the CDR. The contractor shall present a final design that incorporates all deficiencies identified from the PDR. The contractor shall provide a detailed review of the hardware design for the MEHPS and all data items required by the contract. The contractor shall provide a trace capable of demonstrating that the design furnished at CDR implements the performance requirements of the MEHPS, and present the methods used to verify and validate the design. The contractor shall present the results of producibility analyses conducted on system hardware for Government assessment to ensure detailed producibility design solutions satisfy the established requirements. The contractor shall deliver to the Government all information presented and referenced at technical reviews no later than 30 days after the review. Topics the contractor shall cover at the CDR shall include, but not be limited to the following:

a. Detailed Program Plan indicating Design, Fabrication, and Test Phases
b. Interface specification/drawings
c. Detailed Electrical/Mechanical/Software Design
d. EMI/Thermal/Cooling Design
e. Detailed Reliability/Maintainability Analysis
f. Detailed weight data
g. Environment, Safety, and Occupational Health (ESOH) Analysis
h. Packaging/Handling/Storage/Transportation
i. Testing documents
j. Interoperability
k. Transportability
l. Corrosion Prevention and Control (CPAC)
m. Critical Safety Items (CSIs)
n. Diminishing Manufacturing Sources and Material Shortages (DMSMS)
o. Open Systems Design
p. Quality and Producibility for manufacturing
q. Supportability
r. Mock-ups, breadboards, and/or prototype hardware developed

CDRL A002, DI-SESS-81757A, Design Review Information Package (CDR)

3.3.1.3 ***Test Readiness Review***

The contractor shall participate in a Test Readiness Review (TRR) conducted twelve (12) months after contract award upon system delivery, unless otherwise agreed upon by the Government. The contractor shall have all studies, estimates, analyses, designs, and reports available for the Government to review at least 15 days prior to the TRR. The Test Readiness Review (TRR) is a multi-discipline product and process assessment to ensure that the system under review can proceed into formal test. The TRR assesses test objectives, test methods and procedures, scope of tests, and determines if the required test resources, including test articles, have been properly identified and coordinated to support planned tests. Topics the contractor shall cover at the TRR shall include, but not be limited to the following:

a. Overview of system operation
b. Results of testing conducted prior to delivery
c. Discrepancies or issues discovered during testing, including changes made as a result
d. Known limitations of the system which may cause issues during government testing
e. Review of Requirement Traceability Matrix (RTM) for system

CDRL A003, DI-SESS-81757A, Design Review Information Package (TRR)

3.3.2 Requirements Traceability Matrix.

At the design reviews the contractor shall provide RTM data to the Government. The RTM uniquely identifies program requirements to ensure that the requirements can be traced and verified through the design, build, test, and verification phases of development. The contractor RTM shall state the specific system part that is achieving the requirement for each requirement set forth in the PSpec. The contractor shall update the RTM at each design review and provide to the Government for review.

CDRL A004, DI-MISC-80508B, Technical Report / Study Services (RTM)

3.3.3 Corrosion Prevention and Control.

At the design reviews, the contractor shall describe the specific measures to be implemented for corrosion prevention and control design decision and identify materials and corrosion control methods that will be used to manufacture the MEHPS prototypes. The contractor shall address the techniques and processes to be applied in assuring that the products to be delivered will meet the requirements contained in the MEHPS PSpec. At a minimum, the contractor shall provide the following information 15 days prior to the design reviews with the other design review information for Government review.

a. Discussion of corrosion prevention techniques employed in design, including measures taken to minimize water collection/entrapment and collection of debris, mitigate corrosion in areas inaccessible to cleaning and maintenance, and minimize dissimilar metal contact.

b. Process instructions detailing application of coatings and other corrosion prevention compounds (if any). Process instructions should address personnel training and qualification, material inspection, surface preparation, and coating or compound application procedures.

c. Any test data developed by the MEHPS prototype manufacturer for coatings and materials.

d. Identification of coating/substrate combinations for which no testing was required or performed.

e. Recommended corrosion control-specific maintenance.

f. Identification of any hazardous material in the Corrosion Prevention and Control process.

3.3.4 Reliability and Maintainability Program.
The contractor shall maintain a comprehensive Reliability and Maintainability (R&M) program to ensure the MEHPS design meets the R&M standards set forth in the PSpec. The design shall be monitored throughout the entire period of performance to identify and assess any changes, which would impact reliability or maintainability. The contractor shall develop reliability analysis and predictions as required to ensure compliance with the PSpec. The program shall encompass all aspects of reliability with respect to design selection of components, predictions, and testing. If it is determined that an item is a throwaway, an analysis shall be performed at the next higher indenture level. The contractor shall maintain and make available to the Government all R&M data on any vendor or subcontractor supplied item and shall inform the Government of any part or component, which will degrade system R&M requirements. The R&M program shall minimally include the following task:

3.3.4.1 Procedures and Controls.
The contractor shall maintain procedures and controls, which ensure products, obtained from suppliers, vendors and subcontractors meet reliability requirements.

a. Establish, implement, and maintain documented procedures, which detect and/or preclude the use of substandard or counterfeit parts in the production process, and impose similar requirements on subcontractors.

b. Provide the Government with reasonable notice of any special R&M program review meetings scheduled with subcontractors so Government representatives may attend at their discretion.

3.3.5 Testability.
The contractor shall develop and implement a Testability Program to ensure the MEHPS is designed to provide the end-user and technicians assurance of system operation and ease in fault isolation. The Testability Program shall be included with the Reliability and Maintainability Program.

3.3.6 Human Systems Integration.
The contractor shall apply effective Human Systems Integration (HSI) principles and design activities during MEHPS design, production and integration, and operation. The contractor shall develop and execute an HSI program that ensures Human Factors Engineering, Manpower, Personnel, Training, Environmental, Safety, Occupational Health (ESOH), Personnel Survivability, and Habitability aspects and requirements have been coordinated and incorporated into the layout, design, and development of systems having operator, maintainer and supporter interfaces. Human Factors Engineering (HFE) aspects of the HSI program shall be conducted in accordance with MIL-STD-46855A, and MIL-STD-1472. Environmental, Safety, Occupational Health (ESOH) aspects of the program shall be conducted in accordance with MIL-STD-882D.

3.3.6.1 Human Factors Engineering.
Human factors design requirements shall be established to develop effective man-machine interfaces and preclude system characteristics that require: extensive cognitive, physical, or sensory skills; complex manpower or training intensive tasks; or result in frequent or critical errors.

3.3.7 Open Architecture.
The Government intends to procure system(s) having an Open Systems Architecture and corresponding components. As part of this contract, the contractor will be required to define, document, and follow an open systems approach for using modular design, standards-based interfaces, and widely-supported consensus-based standards in the design and manufacturing of the system. This effort will be verified during the design reviews

3.3.7.1 ***Design Approach Characteristics.***
The contractor shall incorporate the following system architecture approach characteristics:

a. Open Architecture. The contractor shall develop and maintain a system (hardware/software) architecture that incorporates appropriate considerations for re-configurability, portability, maintainability, technology insertion, vendor independence, reusability, scalability, interoperability, upgradeability, and long-term supportability. The contractor shall ensure that external information exchange requirements are implemented in a standard and open manner as part of this effort.

b. Modular, Open Design. The contractor shall develop an architecture that is modular and limits the use of non-standard hardware, operating systems, and middleware. The contractor's design approach shall be applied to all subsystems and components. As part of the design reviews, the contractor shall, at a minimum, describe how the proposed system architecture meets these goals, including the steps taken to use non-proprietary or non-vendor unique components wherever practicable.

· Module Coupling - The contractor's design approach shall result in modules that have minimal dependencies on other modules (loose coupling), as evidenced by simple, well-defined interfaces and by the absence of implicit data sharing. The purpose is to ensure that any changes to one module will not necessitate extensive changes to other modules, and hence facilitate module replacement and system enhancement. The approach used to determine the level of coupling and the design trade-off approach shall be described during the design reviews.

· Module Cohesion - The contractor's design shall result in modules that are characterized by the singular assignment of identifiable and discrete functionality (high cohesion). The purpose is to ensure that any changes to system behavioral requirements can be accomplished by changing a minimum number of modules within the system. The approach used to determine the level of cohesion and the design trade-off approach shall be described during the design reviews.

c. System Requirements Accountability. The contractor shall ensure that all system requirements in the PSpec are accounted for through a demonstrated ability to trace each requirement to one or more modules that consist of components that are self-contained elements with well-defined, open and published interfaces implemented using open standards.

d. Inter-component Dependencies. The contractor's design approach for hardware/software of the system shall result in a layered system design, maximizing software independence from the hardware, thereby facilitating technology refresh. The design shall be optimized at the lowest component level to minimize inter-component dependencies. The layered design shall also isolate the application software layers from the infrastructure software (such as the operating system) to enhance portability and to facilitate technology refresh. The interfaces between the layers shall be built to open standards or available to the Government with the technical data rights as required by DFARS clauses 252.227-7013 and 252.227-7015.

e. Technology Insertion. The contractor's architectural approach shall support the rapid and affordable insertion and refreshment of technology through modular design, the use of open standards, and open interfaces. The contractor shall define the functional partitioning and the physical modularity of the system to facilitate future replacement of specific subsystems and components without impacting other parts of the system and to encourage third-party vendors' participation.

f. Interface Design and Management. The contractor shall:

i. Clearly define and describe all component and system interfaces;

ii. Define and document all subsystem and configuration item (CI) level interfaces to provide full functional, logical, and physical specifications;

iii. Identify processes for specifying the lowest level (i.e. subsystem or component) at and below which it intends to control and define interfaces by proprietary or vendor-unique standards and the impact of that upon its proposed logistics approach. Interfaces described shall include, but not be limited to, mechanical, electrical (power and signal wiring), software, firmware, and hardware interfaces;

iv. Identify the interface and data exchange standards between the component, module or system and the interconnectivity or underlying information exchange medium;

v. Consider using these interfaces to support an overall information assurance strategy that implements Cybersecurity in accordance with DoD Instruction 8500.01 (dated 14 March 2014);

vi. If applicable, select external interfaces from existing open or Government standards with an emphasis on enterprise-level interoperability. The contractor shall describe how its selection of interfaces will maximize the ability of the system to easily accommodate technology insertion (both hardware and software) and facilitate the insertion of alternative or reusable modular system elements.

vii. Describe the extent that the change or configuration management process proposed will use "community of interest" teams in an integrated team approach to effectively identify how individual changes impact the system's internal or external interfaces and information exchange standards.

g. Treatment of Proprietary or Vendor-Unique Elements. The contractor shall explain the use of proprietary, vendor-unique, or closed components or interfaces. If applicable, the contractor shall define its process for identifying and justifying proprietary, vendor-unique or closed interfaces, code modules, hardware, firmware, or software to be used. When interfaces, hardware, firmware, or modules that are proprietary or vendor-unique are required, the contractor shall demonstrate to the Government that those proprietary elements do not preclude or

hinder other component or module developers from interfacing with or otherwise developing, replacing, or upgrading open parts of the system.

h. Open Business Practices. The contractor shall demonstrate that the modularity of the system design promotes the identification of multiple sources of supply and/or repair, and supports flexible business strategies that enhance subcontractor competition. The contractor shall conduct a market survey to identify candidate COTS, proprietary, open source software (OSS) and other reusable NDI capable of achieving the performance requirements of solutions that it proposes to custom build. The survey results shall be provided to support each design review.

i. Third Party Development. The contractor shall address how it will provide to the Government information needed to support third-party development and delivery of competitive alternatives of designs for software or other components or modules on an ongoing basis. The contractor shall provide a list of those proprietary, vendor-unique elements that it requests be exempt from this review at the preliminary design review.

j. Life Cycle Management and Open Systems. The contractor's architecture shall provide for insertion of COTS into the system and demonstrate that COTS, reusable NDI, and other components are logistically supported throughout the life cycle. The contractor shall describe and demonstrate the strategy for reducing product or system and associated supportability costs through insertion of COTS and other reusable COTS or NDI products. The contractor shall establish a process to logistically support COTS or NDI products. The contractor shall describe the availability of commercial repair parts and repair services, facilities, and manpower required for life cycle support and demonstrate they are adequate to ensure long term support for COTS or NDI products. The contractor shall provide the proposed methodology for pass through of COTS warranties to the Government.

3.4 Producibility.

The contractor shall apply effective producibility principles during the MEHPS prototype design process to ensure that the production units will be easy to manufacture using the anticipated production facilities, equipment, materials, manpower, and processes. The producibility planning effort shall also maximize the ease of production control, quality control, tooling and inspection. The contractor shall report on the progress of this effort during the PDR and CDR and make any data created available to the Government upon request.

3.4.1 Producibility Analysis.
The contractor shall prepare and deliver a Producibility Analysis Report.

CDRL A005, DI-MGMT-80797 – Producibility Analysis Report

3.5 Environment, Safety, and Occupational Health.

3.5.1 System Safety.
The contractor shall identify and evaluate environmental, safety, and health hazards, define risk levels, and establish a program that manages the probability and severity of all hazards associated with development, use, and disposal of the system in accordance with MIL-STD-882. Risks will be evaluated by the Government in accordance with MIL-STD-882 and accepted as appropriate prior to exposing people, equipment, or the environment to known system related Environment, Safety, and Occupational Health (ESOH) risks. The contractor must identify all explosive safety risks as such in the system safety documentation.

3.5.1.1 Safety Assessment.
The contractor shall perform and document a Safety Assessment to identify all safety features of the hardware, software, and system design and to identify procedural, hardware and software related hazards that may be present in the MEHPS including specific procedural controls and precautions that should be followed. In addition, the contractor shall make recommendations applicable to hazards at the interface of the MEHPS with other system(s).

3.5.1.2 Safety Assessment Report.
The contractor shall provide a Safety Assessment Report (SAR) that documents the Safety Assessment and clearly identifies risks of the MEHPS. The SAR shall include a signed statement that all identified hazards have been eliminated or their associated risks controlled to acceptable levels and that the MEHPS is ready to test, field, or operate.

CDRL A006, DI-SAFT-80102C, Safety Assessment Report (SAR)

3.5.1.3 ***System Hazard Analysis.***
The contractor shall perform and document a System Hazard Analysis (SHA) to identify hazards and assess the risk of the total system design, including software, batteries, and subsystem interfaces. The SHA shall verify system compliance with safety requirements contained in system specifications; identify previously unidentified hazards associated with the subsystem interfaces and system functional faults; and recommend actions necessary to eliminate identified hazards and/or control their associated risk to acceptable levels. The SHA shall include selected hazards, hazardous areas, or other specific items to be examined or excluded.

3.5.1.4 System Safety Hazard Analysis Report.
The contractor shall provide a System Safety Hazard Analysis (SSHA) report to the Government and identify risks that require Government acceptance.

CDRL A007, DI-SAFT-80101C, System Safety Hazard Analysis (SSHA) Report

3.5.1.5 ***Operating and Support Hazard Analysis.***
The contractor shall perform and document an Operating and Support Hazard Analysis (O&SHA) to evaluate activities for hazards or risks introduced into the system by operational and support procedures and to evaluate adequacy of operational and support procedures used to eliminate, control or abate identified hazards or risks. The O&SHA shall document system safety assessment of procedures involved in system production, deployment, installation, assembly, test, operation, maintenance, servicing, transportation, storage, modification, demilitarization, and disposal. The O&SHA shall include the minimum hazard probability and severity reporting thresholds and the specific procedures to be evaluated.

3.5.1.6 Operating and Support Hazard Analysis Report.
The contractor shall provide an Operating and Support Hazard Analysis (O&SHA) report to the Government.

CDRL A008, DI-MISC-80508B, Technical Report, Study/Services (OSHA)

3.5.1.7 ***Health Hazard Assessment.***
The contractor shall perform and document a Health Hazard Assessment (HHA) to identify health hazards, evaluate proposed hazardous materials, and propose protective measures to reduce the associated risk to a level acceptable by the Government. The HHA shall include the minimum hazard probability and severity reporting thresholds and selected hazards, hazardous areas, hazardous materials, or other specific items to be examined or excluded and be presented at the CDR.

CDRL A009, DI-MISC-80508B, Technical Report, Study/Services (HHA)

3.5.2 Environmental Considerations.
The contractor shall provide information on the potential for adverse environmental impacts from the manufacturing, operation, maintenance, and disposal of the MEHPS. This information will be used to assist the Government in making a preliminary National Environmental Policy Act (NEPA) decision and in the preparation of formal NEPA documents, which include Categorical Exclusion (CATEX), Environmental Assessments (EA), and Environmental Impact Statements (EIS). Such environmental impacts include air, soil, wetlands, water, flora, fauna, endangered species, emissions and toxic waste resulting from development, maintenance (coatings and primers), operation, disposal, etc.

CDRL A010, DI-MISC-80508B, Technical Report, Study/Services (EC)

3.6 Configuration Management Process.

The contractor shall maintain a Configuration Management (CM) process for the control of all requirements, hardware, software and external system interface configuration documentation, media and parts representing or comprising the MEHPS.

3.6.1 Interface Control Working Group.
The contractor shall participate in joint Government-contractor working groups to ensure successful achievement of interface and interoperability requirements and problem resolution for the MEHPS. As part of this effort the contractor shall develop, maintain, update (as required), and deliver an Interface Control Document (ICD) that describes the physical/functional relationship for system/components for each MEHPS model. The ICD shall also contain the entire electrical connection configuration, pin outs of connectors, software interfaces, communication protocol between components, data transitioned between components, rate of transmission, and any other information needed to operate the system components with each other and outside systems.

CDRL A011, DI-SESS-81248B, Interface Control Document (ICD)

3.6.2 Baseline Management.
The contractor shall be responsible for maintaining the currency and accuracy of the established baseline to ensure form, fit, function, and interface of the MEHPS. The contractor shall establish definitive processes, which identify how the baseline will be managed/maintained. These processes shall be defined in the contractor's CM plan and made available for Government review at the design reviews and upon request.

3.6.2.1 Functional Baseline.
The approved configuration documentation describing a system's or top-level CIs/Software Configuration Items (SCI) performance (functional, interoperability, and interface characteristics) and the verification required to demonstrate the achievement of those specified characteristics is referred to as the functional baseline.

3.6.2.2 Allocated Baseline.
The allocated baseline is the approved performance oriented documentation, for a CI/SCI to be developed, which shall describe the functional and interface characteristics that are allocated from those of the higher level CI/SCI and the verification required to demonstrate achievement of those specified characteristics which shall include; (1) essential CI functional characteristics; (2) external and internal interface requirements for each CI/SCI; (3) physical characteristics necessary to ensure compatibility with associated systems and CI's; (4) constraints on the design of a CI, including GFE employed, component standardization, and Integrated Logistics Support requirements.

The allocated baseline shall be established after successful completion of the overall system PDR with all associated documentation.

3.6.2.3 Product Baseline.
The product baseline is the approved technical documentation that describes the configuration of a CI/SCI during the production, fielding/deployment and operational support phases of its life cycle. The product baseline shall prescribe; (1) all necessary physical or form, fit, and functional characteristics of a CI/SCI; (2) the selected functional characteristics designated for production acceptance testing and; (3) the production acceptance test requirements. The contractor shall establish the product baseline at the CDR. No changes shall be made to this baseline without prior government approval.

3.7 Engineering Drawings.

3.7.1 Developmental Design Drawings/Models.
The contractor shall create developmental design drawings/models and deliver them to the Government. If furnished by the Government, the contractor shall use existing drawings/models as the basis for creating the developmental design drawings/models. Revised and/or updated existing drawings/models and new drawings/models shall be included in the package. Developmental design drawings/models shall be used as the engineering data to support design analysis and the development of pre-production hardware. They shall serve as the basis for establishing the allocated baseline and for future development of the product drawings. These drawings/models shall also be used

for configuration management and for controlling and using materials, parts, and assemblies whether produced in-house or vendor supplied.

CDRL A012, DI-SESS-81002F, Developmental Design Drawings/Models and Associated Lists

3.7.2 Commercial Drawings/Models.
The contractor shall provide commercial drawings/models to the Government for commercial items approved for use in the design and not covered by Government or nationally recognized industry association specifications and standards. The contractor shall provide evidence that the part complies with the requirements of the applicable part documentation. Existing test data shall be used to the maximum extent practicable.

CDRL A013, DI-SESS-81003E, Commercial Drawings/Models and Associated Lists

3.7.3 Product Drawings/Models.
The contractor shall develop a complete product drawing/models package and provide it to the Government. This process may require the revision and update of existing drawings, and/or development of new drawings to meet the requirements of product drawings/models and associated lists. Existing, revised, and new product drawings/models and associated lists shall be used as the engineering data for procuring, controlling, and using materials, parts, and assemblies whether produced in-house or supplied by the vendor. The drawings/models shall be used for the manufacture, assembly, inspection, testing, and configuration management of the materials, parts, modules, subassemblies, and assemblies of the equipment covered under this contract. The product drawings shall also include control drawings for all COTS items that do not conform to recognized Government or industry specifications, NDI, and items developed at private expense for which the Government had not acquired at least Government Purpose rights (GPR). These control drawings shall provide the applicable performance specification of form, fit, and function and provide interface information needed for competitive re-procurement of that item or an interchangeable item. New product drawings/models shall conform to ASME Y14.100 and ASME Y14.34.

CDRL A014, DI-SESS-81000E, Product Drawings/Models and Associated Lists

3.8 Testing/Verification.

3.8.1 Contractor Support to Government Testing.
The contractor shall support Government Developmental Test (DT) efforts for 6 months after delivery of all items. This support shall commence on the date the last system is delivered to the Government and shall be all-inclusive for parts, labor and travel to testing sites within 100 miles of Washington DC. The contractor shall be prepared to provide (1) one on-site technical person for a maximum of (5) days to support the testing efforts for a maximum of three (3) trips. Any user level maintenance not addressed in the Operations and Maintenance Manual shall be covered under this service.

3.9 Power.

3.9.1 Lithium Batteries.

3.9.1.1 Transportation Data.
The contractor shall provide all relevant Department of Transportation and United Nations Transportation data available on the battery. The contractor shall provide an analysis of battery transportation for the system. The contractor shall provide all information on how/why its battery is compliant with 49 CFR 173.185 shipping regulations.

CDRL A015, DI-MISC-80508B, Technical Report/ Study Services (BT)

3.9.1.2 Lithium Battery Safety Qualification.
The contractor shall develop a safety data package that shall document and demonstrate the stability of design and validity of the lithium battery selection IAW NAVSEAINST 9310.1B, TM S9310-AQ-SAF-010, dated 15 July 2010, and SG270-BV-SAF-010.

The contractor shall provide data from contractor testing of the complete system/item.

CDRL A016, DI-MISC-80508B, Technical Report/ Study Services (LB)

3.9.1.3 ***Lithium Battery Safety Assessment.***
The contractor shall document all contractor and Government lithium battery safety assessment efforts in the Safety Assessment Report (SAR). The SAR shall include the lithium battery risk assessment, recommendations, procedures and other corrective actions to reduce hazards to an acceptable level.

4.0 Security Requirements

The information provided to the contractor will be unclassified and/or sensitive unclassified information. The contractor is not required or expected to have a Facility Clearance and contractor personnel supporting this effort are not required to possess Personnel Clearance Levels. However, the contractor is responsible for complying with the requirements in the clause at DFARS 252.204-7012, Safeguarding of Unclassified Controlled Technical Information, including maintaining adequate security for its information systems. Any contractor personnel requiring access to U.S. Government sensitive unclassified information shall possess a completed background investigation (minimum of a NACI) for this Public Trust Position.

Section D - Packaging and Marking

CLAUSES INCORPORATED BY FULL TEXT

252.211-7003 ITEM UNIQUE IDENTIFICATION AND VALUATION (DEC 2013)

(a) Definitions. As used in this clause'

Automatic identification device means a device, such as a reader or interrogator, used to retrieve data encoded on machine-readable media.

Concatenated unique item identifier means--

(1) For items that are serialized within the enterprise identifier, the linking together of the unique identifier data elements in order of the issuing agency code, enterprise identifier, and unique serial number within the enterprise identifier; or

(2) For items that are serialized within the original part, lot, or batch number, the linking together of the unique identifier data elements in order of the issuing agency code; enterprise identifier; original part, lot, or batch number; and serial number within the original part, lot, or batch number.

Data Matrix means a two-dimensional matrix symbology, which is made up of square or, in some cases, round modules arranged within a perimeter finder pattern and uses the Error Checking and Correction 200 (ECC200) specification found within International Standards Organization (ISO)/International Electrotechnical Commission (IEC) 16022.

Data qualifier means a specified character (or string of characters) that immediately precedes a data field that defines the general category or intended use of the data that follows.

DoD recognized unique identification equivalent means a unique identification method that is in commercial use and has been recognized by DoD. All DoD recognized unique identification equivalents are listed at http://www.acq.osd.mil/dpap/pdi/uid/iuid_equivalents.html.

DoD item unique identification means a system of marking items delivered to DoD with unique item identifiers that have machine-readable data elements to distinguish an item from all other like and unlike items. For items that are serialized within the enterprise identifier, the unique item identifier shall include the data elements of the enterprise identifier and a unique serial number. For items that are serialized within the part, lot, or batch number within the enterprise identifier, the unique item identifier shall include the data elements of the enterprise identifier; the original part, lot, or batch number; and the serial number.

Enterprise means the entity (e.g., a manufacturer or vendor) responsible for assigning unique item identifiers to items.

Enterprise identifier means a code that is uniquely assigned to an enterprise by an issuing agency.

Government's unit acquisition cost means--

(1) For fixed-price type line, subline, or exhibit line items, the unit price identified in the contract at the time of delivery;

(2) For cost-type or undefinitized line, subline, or exhibit line items, the Contractor's estimated fully burdened unit cost to the Government at the time of delivery; and

(3) For items produced under a time-and-materials contract, the Contractor's estimated fully burdened unit cost to the Government at the time of delivery.

Issuing agency means an organization responsible for assigning a globally unique identifier to an enterprise (e.g., Dun & Bradstreet's Data Universal Numbering System (DUNS) Number, GS1 Company Prefix, Allied Committee 135 NATO Commercial and Government Entity (NCAGE)/Commercial and Government Entity (CAGE) Code, or the Coded Representation of the North American Telecommunications Industry Manufacturers, Suppliers, and Related Service Companies (ATIS-0322000) Number), European Health Industry Business Communication Council (EHIBCC) and Health Industry Business Communication Council (HIBCC)), as indicated in the Register of Issuing Agency Codes for ISO/IEC 15459, located at http://www.nen.nl/Normontwikkeling/Certificatieschemas-en-keurmerken/Schemabeheer/ISOIEC-15459.htm.

Issuing agency code means a code that designates the registration (or controlling) authority for the enterprise identifier.

Item means a single hardware article or a single unit formed by a grouping of subassemblies, components, or constituent parts.

Lot or batch number means an identifying number assigned by the enterprise to a designated group of items, usually referred to as either a lot or a batch, all of which were manufactured under identical conditions.

Machine-readable means an automatic identification technology media, such as bar codes, contact memory buttons, radio frequency identification, or optical memory cards.

Original part number means a combination of numbers or letters assigned by the enterprise at item creation to a class of items with the same form, fit, function, and interface.

Parent item means the item assembly, intermediate component, or subassembly that has an embedded item with a unique item identifier or DoD recognized unique identification equivalent.

Serial number within the enterprise identifier means a combination of numbers, letters, or symbols assigned by the enterprise to an item that provides for the differentiation of that item from any other like and unlike item and is never used again within the enterprise.

Serial number within the part, lot, or batch number means a combination of numbers or letters assigned by the enterprise to an item that provides for the differentiation of that item from any other like item within a part, lot, or batch number assignment.

Serialization within the enterprise identifier means each item produced is assigned a serial number that is unique among all the tangible items produced by the enterprise and is never used again. The enterprise is responsible for ensuring unique serialization within the enterprise identifier.

Serialization within the part, lot, or batch number means each item of a particular part, lot, or batch number is assigned a unique serial number within that part, lot, or batch number assignment. The enterprise is responsible for ensuring unique serialization within the part, lot, or batch number within the enterprise identifier.

Type designation means a combination of letters and numerals assigned by the Government to a major end item, assembly or subassembly, as appropriate, to provide a convenient means of differentiating between items having the same basic name and to indicate modifications and changes thereto.

Unique item identifier means a set of data elements marked on items that is globally unique and unambiguous. The term includes a concatenated unique item identifier or a DoD recognized unique identification equivalent.

Unique item identifier type means a designator to indicate which method of uniquely identifying a part has been used. The current list of accepted unique item identifier types is maintained at http://www.acq.osd.mil/dpap/pdi/uid/uii_types.html.

(b) The Contractor shall deliver all items under a contract line, subline, or exhibit line item.

(c) Unique item identifier. (1) The Contractor shall provide a unique item identifier for the following:

(i) Delivered items for which the Government's unit acquisition cost is $5,000 or more, except for the following line items:

Contract line, subline, or exhibit line item No.	Item description
.....	

(ii) Items for which the Government's unit acquisition cost is less than $5,000 that are identified in the Schedule or the following table:

Contract line, subline, or exhibit line item No.	Item description
.....	

(If items are identified in the Schedule, insert ``See Schedule'' in this table.)

(iii) Subassemblies, components, and parts embedded within delivered items, items with warranty requirements, DoD serially managed reparables and DoD serially managed nonreparables as specified in Attachment Number ----.

(iv) Any item of special tooling or special test equipment as defined in FAR 2.101 that have been designated for preservation and storage for a Major Defense Acquisition Program as specified in Attachment Number ----.

(v) Any item not included in paragraphs (c)(1)(i), (ii), (iii), or

(iv) of this clause for which the contractor creates and marks a unique item identifier for traceability.

(2) The unique item identifier assignment and its component data element combination shall not be duplicated on any other item marked or registered in the DoD Item Unique Identification Registry by the contractor.

(3) The unique item identifier component data elements shall be marked on an item using two dimensional data matrix symbology that complies with ISO/IEC International Standard 16022, Information technology--International symbology specification--Data matrix; ECC200 data matrix specification.

(4) Data syntax and semantics of unique item identifiers. The Contractor shall ensure that--

(i) The data elements (except issuing agency code) of the unique item identifier are encoded within the data matrix symbol that is marked on the item using one of the following three types of data qualifiers, as determined by the Contractor:

(A) Application Identifiers (AIs) (Format Indicator 05 of ISO/IEC International Standard 15434), in accordance with ISO/IEC International Standard 15418, Information Technology--EAN/UCC Application Identifiers and Fact Data Identifiers and Maintenance and ANSI MH 10.8.2 Data Identifier and Application Identifier Standard.

(B) Data Identifiers (DIs) (Format Indicator 06 of ISO/IEC International Standard 15434), in accordance with ISO/IEC International Standard 15418, Information Technology--EAN/UCC Application Identifiers and Fact Data Identifiers and Maintenance and ANSI MH 10.8.2 Data Identifier and Application Identifier Standard.

(C) Text Element Identifiers (TEIs) (Format Indicator 12 of ISO/IEC International Standard 15434), in accordance with the Air Transport Association Common Support Data Dictionary; and

(ii) The encoded data elements of the unique item identifier conform to the transfer structure, syntax, and coding of messages and data formats specified for Format Indicators 05, 06, and 12 in ISO/IEC International Standard 15434, Information Technology-Transfer Syntax for High Capacity Automatic Data Capture Media.

(5) Unique item identifier.

(i) The Contractor shall--

(A) Determine whether to--

(1) Serialize within the enterprise identifier;

(2) Serialize within the part, lot, or batch number; or

(3) Use a DoD recognized unique identification equivalent (e.g. Vehicle Identification Number); and

(B) Place the data elements of the unique item identifier (enterprise identifier; serial number; DoD recognized unique identification equivalent; and for serialization within the part, lot, or batch number only: Original part, lot, or batch number) on items requiring marking by paragraph (c)(1) of this clause, based on the criteria provided in MIL-STD-130, Identification Marking of U.S. Military Property, latest version;

(C) Label shipments, storage containers and packages that contain uniquely identified items in accordance with the requirements of MIL-STD-129, Military Marking for Shipment and Storage, latest version; and

(D) Verify that the marks on items and labels on shipments, storage containers, and packages are machine readable and conform to the applicable standards. The contractor shall use an automatic identification technology device for this verification that has been programmed to the requirements of Appendix A, MIL-STD-130, latest version.

(ii) The issuing agency code--

(A) Shall not be placed on the item; and

(B) Shall be derived from the data qualifier for the enterprise identifier.

(d) For each item that requires item unique identification under paragraph (c)(1)(i), (ii), or (iv) of this clause or when item unique identification is provided under paragraph (c)(1)(v), in addition to the information provided as part of the Material Inspection and Receiving Report specified elsewhere in this contract, the Contractor shall report at the time of delivery, as part of the Material Inspection and Receiving Report, the following information:

(1) Unique item identifier.

(2) Unique item identifier type.

(3) Issuing agency code (if concatenated unique item identifier is used).

(4) Enterprise identifier (if concatenated unique item identifier is used).

(5) Original part number (if there is serialization within the original part number).

(6) Lot or batch number (if there is serialization within the lot or batch number).

(7) Current part number (optional and only if not the same as the original part number).

(8) Current part number effective date (optional and only if current part number is used).

(9) Serial number (if concatenated unique item identifier is used).

(10) Government's unit acquisition cost.

(11) Unit of measure.

(e) For embedded subassemblies, components, and parts that require DoD unique item identification under paragraph (c)(1)(iii) of this clause, the Contractor shall report as part of, or associated with, the Material Inspection and Receiving Report specified elsewhere in this contract, the following information:

(1) Unique item identifier of the parent item under paragraph (c)(1) of this clause that contains the embedded subassembly, component, or part.

(2) Unique item identifier of the embedded subassembly, component, or part.

(3) Unique item identifier type.**

(4) Issuing agency code (if concatenated unique item identifier is used).**

(5) Enterprise identifier (if concatenated unique item identifier is used).**

(6) Original part number (if there is serialization within the original part number).**

(7) Lot or batch number (if there is serialization within the lot or batch number).**

(8) Current part number (optional and only if not the same as the original part number).**

(9) Current part number effective date (optional and only if current part number is used).**

(10) Serial number (if concatenated unique item identifier is used).**

(11) Description.

(12) Type designation of the item as specified in the contract schedule, if any.

(13) Whether the item is an item of Special Tooling or Special Test Equipment.

(14) Whether the item is covered by a warranty.

** Once per item.

(e) For embedded subassemblies, components, and parts that require DoD item unique identification under paragraph (c)(1)(iii) of this clause or when item unique identification is provided under paragraph

(c)(1)(v), the Contractor shall report as part of the Material Inspection and Receiving Report specified elsewhere in this contract, the following information:

(f) The Contractor shall submit the information required by paragraphs (d) and (e) of this clause as follows:

(1) End items shall be reported using the receiving report capability in Wide Area WorkFlow (WAWF) in accordance with the clause at 252.232-7003. If WAWF is not required by this contract, and the contractor is not using WAWF, follow the procedures at http://dodprocurementtoolbox.com/site/uidregistry/.

(2) Embedded items shall be reported by one of the following methods--

(i) Use of the embedded items capability in WAWF;

(ii) Direct data submission to the IUID Registry following the procedures and formats at http://dodprocurementtoolbox.com/site/uidregistry/; or

(iii) Via WAWF as a deliverable attachment for exhibit line item number (fill in) ----, Unique Item Identifier Report for Embedded Items, Contract Data Requirements List, DD Form 1423.

(g) Subcontracts. If the Contractor acquires by contract any items for which item unique identification is required in accordance with paragraph (c)(1) of this clause, the Contractor shall include this clause, including this paragraph (g), in the applicable subcontract(s), including subcontracts for commercial items.

(End of clause)

PACKAGING/DELIVERY/SHIPPING

PACKAGING/ DELIVERY/SHIPPING INSTRUCTIONS: Packaging, handling, shipping transportation and marking shall be per Performance Specification.

Section E - Inspection and Acceptance

PROJECT OFFICER
PROJECT OFFICER

The Project Officer under this contract is:
Name: TBD
Phone: TBD
E-mail: TBD

Inspection and Acceptance of contract deliverables are the responsibility of the project officer or his or her duly authorized representative(s) except as otherwise specified in the contract under the inspection and acceptance clause or DD Form 1423, when applicable. Moreover, the Project Officer serves in a supporting role to the Contracting Officer, providing advice and expertise on technical issues. However, only the Contracting Officer has the authority to authorize deviations from the terms and conditions of this contract, including deviations from specification requirements. In the event the Contractor does deviate without written approval of the Contracting Officer, such deviation shall be at the risk of, and any costs relating thereto, shall be borne by the Contractor.

INSPECTION AND ACCEPTANCE TERMS

Supplies/services will be inspected/accepted at:

CLIN	INSPECT AT	INSPECT BY	ACCEPT AT	ACCEPT BY
0001	Origin	Government	Destination	Government
0001AA	Origin	Government	Destination	Government
0001AB	Origin	Government	Destination	Government
0002	Origin	Government	Destination	Government
0003	Destination	Government	Destination	Government
0003AA	Destination	Government	Destination	Government
0003AB	Destination	Government	Destination	Government
0003AC	Destination	Government	Destination	Government
0003AD	Destination	Government	Destination	Government
0003AE	Destination	Government	Destination	Government
0003AF	Destination	Government	Destination	Government
0003AG	Destination	Government	Destination	Government
0003AH	Destination	Government	Destination	Government
0003AJ	Destination	Government	Destination	Government
0003AK	Destination	Government	Destination	Government
0003AL	Destination	Government	Destination	Government
0003AM	Destination	Government	Destination	Government
0003AN	Destination	Government	Destination	Government
0003AP	Destination	Government	Destination	Government
0003AQ	Destination	Government	Destination	Government
0003AR	Destination	Government	Destination	Government
0003AS	Destination	Government	Destination	Government
0003AT	Destination	Government	Destination	Government

0003AU Destination	Government	Destination	Government
0003AV Destination	Government	Destination	Government

CLAUSES INCORPORATED BY REFERENCE

52.246-2	Inspection Of Supplies--Fixed Price	AUG 1996
52.246-7	Inspection Of Research And Development Fixed Price	AUG 1996
52.246-16	Responsibility For Supplies	APR 1984
252.246-7000	Material Inspection And Receiving Report	MAR 2008

Section F - Deliveries or Performance

DELIVERY INFORMATION

DELIVERY SCHEDULE

CLIN	Description	Qty	Due Date	Del. Destination
0001	Design and Fabrication	N/A	N/A	N/A
0001AA	Design and Fabrication-Light MEHPS	4	12 months ADC	N00167 Naval Surface Warfare Center-Caderock Attn: Eric Shields BLDG 12 RM 204 9500 Macarthur Blvd Bethesda, MD 20817-5700
0001AB	Design and Fabrication-Medium MEHPS	4	12 months ADC	N00167 Naval Surface Warfare Center-Caderock Attn: Eric Shields BLDG 12 RM 204 9500 Macarthur Blvd Bethesda, MD 20817-5700
0002	Testing and Verification	1	Begin 12 months ADC through 6 months After Delivery of all items	Within 100 miles of Washington, DC
0003	Contract Data Requirement List	N/A	N/A	N/A
0003AA	CDRL DATA ITEM B001	1	5 Calendar Days after Receipt of GFE	See Contract Data Requirements Lists
0003AB	CDRL DATA ITEM B002	1	5 Calendar Days after discovery of discrepancy	See Contract Data Requirements Lists
0003AC	CDRL DATA ITEM A015	1	Draft-15 Calendar Days prior to CDR Final-30 Calendar Days prior to system delivery	See Contract Data Requirements Lists
003AD	CDRL DATA ITEM A016	1	Draft-15 Calendar Days prior to CDR Final-30 Calendar Days prior to system delivery	See Contract Data Requirements Lists
0003AE	CDRL DATA ITEM B003	1	Draft-15 Calendar Days prior to conference, meeting, etc. Final-10 Calendar Days after receipt of Government Comments	See Contract Data Requirements Lists
0003AF	CDRL DATA ITEM B004	1	Draft-15 Calendar Days after each conference, meeting, etc. Final-10 Calendar Days after receipt of Government Comments	See Contract Data Requirements Lists
0003AG	CDRL DATA ITEM A001	1	Draft-15 Calendar Days prior to review. Final-30 Calendar Days after the review	See Contract Data Requirements Lists
0003AH	CDRL DATA ITEM A002	1	Draft-15 Calendar Days prior to Review. Fianl-30 Calendar Days	See Contract Data Requirements Lists

			after Review	
0003AJ	CDRL DATA ITEM A003	1	Draft-15 Calendar Days Prior to Review. Final-Delivered at the Review	See Contract Data Requirements Lists
0003AK	CDRL DATA ITEM A0004	1	Draft-15 Calendar Days prior to PDR. Update-15 Calendar Days prior to CDR. Final-15 Calendar Days prior to TRR	See Contract Data Requirements Lists
0003AL	CDRL DATA ITEM A005	1	Draft-15 Calendar Days prior to CDR. Final-15 Calendar Days prior to system delivery	See Contract Data Requirements Lists
0003AM	CDRL DATA ITEM A006	1	Draft-15 Calendar Days prior to CDR. Final-15 Calendar Days prior to system delivery	See Contract Data Requirements Lists
0003AN	CDRL DATA ITEM A007	1	Draft-15 Calendar Days prior to CDR. Final-15 Calendar Days prior to system delivery	See Contract Data Requirements Lists
0003AP	CDRL DATA ITEM A008	1	Draft-15 Calendar Days prior to CDR. Final-15 Calendar Days prior to system delivery	See Contract Data Requirements Lists
0003AQ	CDRL DATA ITEM A009	1	Draft-15 Calendar Days prior to CDR. Final-15 Calendar Days prior to system delivery	See Contract Data Requirements Lists
0003AR	CDRL DATA ITEM A010	1	Draft-15 Calendar Days prior to CDR. Final-15 Calendar Days prior to system delivery	See Contract Data Requirements Lists
0003AS	CDRL DATA ITEM A011	1	Draft-15 Calendar Days prior to CDR. Final-15 Calendar Days prior to system delivery	See Contract Data Requirements Lists
0003AT	CDRL DATA ITEM A012	1	Draft-30 Calendar Days prior to PDR. Final-30 Calendar Days after PDR	See Contract Data Requirements Lists
0003AU	CDRL DATA ITEM A013	1	Draft-30 Calendar Days prior to CDR. Final-30 Calendar Days prior to receipt of Hardware Delivery	See Contract Data Requirements Lists
0003AV	CDRL DATA ITEM A014	1	Draft-30 Calendar Days prior to CDR. Final-30 Calendar Days prior to receipt of Hardware Delivery	See Contract Data Requirements Lists

Notes:

ADC-After Date of Contract
GFE-Government Furnished Equipment
TRR-Test Readiness Review
PDR-Preliminary Design Review
CDR-Critical Design Review

CLAUSES INCORPORATED BY REFERENCE

52.242-15	Stop-Work Order	AUG 1989
52.247-34	F.O.B. Destination	NOV 1991

Section G - Contract Administration Data

CONTRACT SUMMARY
CONTRACT INFORMATION
CONTRACT TYPE: A Firm Fixed Price Multiple Award contract may be awarded.

PERIOD OF PERFORMANCE: The period of performance for the subject contract will be 18 months.

CONTRACTOR NOTICE REGARDING LATE DELIVERY
In the event that the contractor, for any reason, anticipates or encounters difficulty in complying with the contract delivery schedule or date, or in meeting any of the other requirements of the contract, they shall immediately notify the Administrative and Procuring Contracting Officers (ACO and PCO) in writing, providing all of the pertinent details. This data shall be informational only in character and its receipt by the Government shall not be construed as a waiver by the Government of (i) any delivery schedule or date, (ii) compliance with any other contract requirement by the contractor, or (iii) any other rights or remedies belonging to the Government under law or otherwise under this contract.

CONTRACT CHANGES
No order, statement, or conduct of Government personnel who might visit the contractor's facility or in any other manner communicated with contractor personnel during the performance of this contract shall constitute a change under the "Changes" clause of this contract.
No understanding or agreement, contract modification, change order, or other matter deviating from or constituting an alteration or change of the terms of the contract shall be effective or binding upon the Government unless formalized by contractual documents executed by the contracting officer or his or her designated representative.
The Contracting Officer is the only person authorized to approve changes in any of the requirements of this contract and, notwithstanding provisions contained elsewhere in the contract, the said authority remains solely with the Contracting Officer. In the event that the contractor effects any change at the direction of any person other than the Contracting Officer, the change will be considered to have been made without authority at the contractor's expense, and no adjustment shall be made in the contract price or other contract terms and conditions as consideration for the aforementioned unauthorized change. Further, should the unauthorized change be to the Government's detriment, the contractor may be held financially responsible for its correction.

POINTS OF CONTACT:

Title	Name	Address	Phone	Email
Contracting Officer	Mr. Terence J. McGinn	2200 Lester St. Quantico, VA 22134-5010	(703) 432-3563	Terence.McGinn@usmc.mil
Contract Specialist	Ms. Ebony M. Guest	2200 Lester St. Quantico, VA 22134-5010	(703) 432-3724	Ebony.Guest@usmc.mil
Project Officer	TBD	2200 Lester St. Quantico, VA 22134-5010	TBD	TBD
DCMA	TBD	TBD	TBD	TBD

CLAUSES INCORPORATED BY REFERENCE

252.232-7003	Electronic Submission of Payment Requests and Receiving Reports	JUN 2012

CLAUSES INCORPORATED BY FULL TEXT

252.232-7006 WIDE AREA WORKFLOW PAYMENT INSTRUCTIONS (MAY 2013)

(a) Definitions. As used in this clause--

Department of Defense Activity Address Code (DoDAAC) is a six position code that uniquely identifies a unit, activity, or organization.

Document type means the type of payment request or receiving report available for creation in Wide Area WorkFlow (WAWF).

Local processing office (LPO) is the office responsible for payment certification when payment certification is done external to the entitlement system.

(b) Electronic invoicing. The WAWF system is the method to electronically process vendor payment requests and receiving reports, as authorized by DFARS 252.232-7003, Electronic Submission of Payment Requests and Receiving Reports.

(c) WAWF access. To access WAWF, the Contractor shall--

(1) Have a designated electronic business point of contact in the System for Award Management at https://www.acquisition.gov; and

(2) Be registered to use WAWF at https://wawf.eb.mil/ following the step-by-step procedures for self-registration available at this Web site.

(d) WAWF training. The Contractor should follow the training instructions of the WAWF Web-Based Training Course and use the Practice Training Site before submitting payment requests through WAWF. Both can be accessed by selecting the “Web Based Training” link on the WAWF home page at https://wawf.eb.mil/.

(e) WAWF methods of document submission. Document submissions may be via Web entry, Electronic Data Interchange, or File Transfer Protocol.

(f) WAWF payment instructions. The Contractor must use the following information when submitting payment requests and receiving reports in WAWF for this contract/order:

(1) Document type. The Contractor shall use the following document type(s).

COMBO

(Contracting Officer: Insert applicable document type(s). Note: If a “Combo” document type is identified but not supportable by the Contractor's business systems, an “Invoice” (stand-alone) and “Receiving Report” (stand-alone) document type may be used instead.)

(2) Inspection/acceptance location. The Contractor shall select the following inspection/acceptance location(s) in WAWF, as specified by the contracting officer.

Inspection: Origin
Acceptance: Destination

(3) Document routing. The Contractor shall use the information in the Routing Data Table below only to fill in applicable fields in WAWF when creating payment requests and receiving reports in the

system.

Routing Data Table*

Field Name in WAWF	Data to be entered in WAWF
Pay Official DoDAAC	**TBD**
Issue By DoDAAC	**M67854**
Admin DoDAAC	**TBD**
Inspect By DoDAAC	**TBD**
Ship To Code	**M67854**
Ship From Code	**TBD**
Mark For Code	____
Service Approver (DoDAAC)	**M67854/EXT PG 15**
Service Acceptor (DoDAAC)	**M67854/EXT PG 15**
Accept at Other DoDAAC	____
LPO DoDAAC	____
DCAA Auditor DoDAAC	____
Other DoDAAC(s)	____

(4) Payment request and supporting documentation. The Contractor shall ensure a payment request includes appropriate contract line item and subline item descriptions of the work performed or supplies delivered, unit price/cost per unit, fee (if applicable), and all relevant back-up documentation, as defined in DFARS Appendix F, (e.g. timesheets) in support of each payment request.

(5) WAWF email notifications. The Contractor shall enter the email address identified below in the "Send Additional Email Notifications" field of WAWF once a document is submitted in the system.
THE USMC WAWF-RA POINT OF CONTACT FOR THIS CONTRACT IS TBD AND CAN BE REACHED ON 703-432-TBD OR VIA EMAIL AT TBD@USMC.MIL.

(g) WAWF point of contact. (1) The Contractor may obtain clarification regarding invoicing in WAWF from the following contracting activity's WAWF point of contact.

NAME: TBD
PHONE: 703-432-TBD
EMAIL: TBD@USMC.MIL

(2) For technical WAWF help, contact the WAWF helpdesk at 866-618-5988.

(End of clause)

Section H - Special Contract Requirements

CONTRACT REQUIREMENTS
SPECIAL CONTRACT REQUIREMENTS

RESERVED

Section I - Contract Clauses

CLAUSES INCORPORATED BY REFERENCE

252.227-7039	Patents--Reporting Of Subject Inventions	APR 1990
52.227-11	Patent Rights--Ownership By The Contractor	MAY 2014
252.227-7038	Patent Rights--Ownership by the Contractor (Large Business)	JUN 2012
252.204-7015	Disclosure of Information to Litigation Support Contractors	FEB 2014
252.204-7014	Limitations on the Use or Disclosure of Information by Litigation Support Contractors	FEB 2014
252.204-7013	Limitations on the Use or Disclosure of Information by Litigation Support Solicitation Offerors	FEB 2014
52.202-1	Definitions	NOV 2013
52.203-3	Gratuities	APR 1984
52.203-5	Covenant Against Contingent Fees	MAY 2014
52.203-7	Anti-Kickback Procedures	MAY 2014
52.203-10	Price Or Fee Adjustment For Illegal Or Improper Activity	MAY 2014
52.203-12	Limitation On Payments To Influence Certain Federal Transactions	OCT 2010
52.203-16	Preventing Personal Conflicts of Interest	DEC 2011
52.204-4	Printed or Copied Double-Sided on Postconsumer Fiber Content Paper	MAY 2011
52.204-7	System for Award Management	JUL 2013
52.204-10	Reporting Executive Compensation and First-Tier Subcontract Awards	JUL 2013
52.209-6	Protecting the Government's Interest When Subcontracting With Contractors Debarred, Suspended, or Proposed for Debarment	AUG 2013
52.209-10	Prohibition on Contracting With Inverted Domestic Corporations	DEC 2014
52.211-2	Availability of Specifications, Standards, and Data Item Descriptions Listed in the Acquisition Streamlining and Standardization Information System (ASSIST)	APR 2014
52.215-6	Place of Performance	OCT 1997
52.215-8	Order of Precedence--Uniform Contract Format	OCT 1997
52.215-14	Integrity of Unit Prices	OCT 2010
52.219-8	Utilization of Small Business Concerns	OCT 2014
52.219-9	Small Business Subcontracting Plan	OCT 2014
52.222-1	Notice To The Government Of Labor Disputes	FEB 1997
52.222-3	Convict Labor	JUN 2003
52.222-21	Prohibition Of Segregated Facilities	APR 2015
52.222-26	Equal Opportunity	APR 2015
52.222-29	Notification Of Visa Denial	APR 2015
52.222-35	Equal Opportunity for Veterans	JUL 2014
52.222-36	Equal Opportunity for Workers with Disabilities	JUL 2014
52.222-37	Employment Reports on Veterans	JUL 2014
52.222-50	Combating Trafficking in Persons	MAR 2015
52.222-54	Employment Eligibility Verification	AUG 2013
52.223-5	Pollution Prevention and Right-to-Know Information	MAY 2011
52.223-6	Drug-Free Workplace	MAY 2001
52.223-10	Waste Reduction Program	MAY 2011
52.223-18	Encouraging Contractor Policies To Ban Text Messaging While Driving	AUG 2011
52.223-19	Compliance with Environmental Management Systems	MAY 2011

52.225-13	Restrictions on Certain Foreign Purchases	JUN 2008
52.225-25	Prohibition on Contracting with Entities Engaging in Certain Activities or Transactions Relating to Iran-- Representation and Certifications.	DEC 2012
52.227-1 Alt I	Authorization And Consent (Dec 2007) - Alternate I	APR 1984
52.229-3	Federal, State And Local Taxes	FEB 2013
52.232-1	Payments	APR 1984
52.232-2	Payments Under Fixed-Price Research And Development Contracts	APR 1984
52.232-15	Progress Payments Not Included	APR 1984
52.232-17	Interest	MAY 2014
52.232-23	Assignment Of Claims	MAY 2014
52.232-25	Prompt Payment	JUL 2013
52.232-33	Payment by Electronic Funds Transfer--System for Award Management	JUL 2013
52.233-1	Disputes	MAY 2014
52.233-3	Protest After Award	AUG 1996
52.233-4	Applicable Law for Breach of Contract Claim	OCT 2004
52.242-13	Bankruptcy	JUL 1995
52.243-1	Changes--Fixed Price	AUG 1987
52.244-6	Subcontracts for Commercial Items	APR 2015
52.245-1 Alt I	Government Property (Apr 2012) Alternate I	APR 2012
52.245-9	Use And Charges	APR 2012
52.249-2	Termination For Convenience Of The Government (Fixed-Price)	APR 2012
52.249-9	Default (Fixed-Priced Research And Development)	APR 1984
52.253-1	Computer Generated Forms	JAN 1991
252.203-7000	Requirements Relating to Compensation of Former DoD Officials	SEP 2011
252.203-7001	Prohibition On Persons Convicted of Fraud or Other Defense-Contract-Related Felonies	DEC 2008
252.203-7002	Requirement to Inform Employees of Whistleblower Rights	SEP 2013
252.203-7005	Representation Relating to Compensation of Former DoD Officials	NOV 2011
252.204-7000	Disclosure Of Information	AUG 2013
252.204-7002	Payment For Subline Items Not Separately Priced	DEC 1991
252.204-7003	Control Of Government Personnel Work Product	APR 1992
252.204-7012	Safeguarding of Unclassified Controlled Technical Information	NOV 2013
252.209-7002	Disclosure Of Ownership Or Control By A Foreign Government	JUN 2010
252.209-7004	Subcontracting With Firms That Are Owned or Controlled By The Government of a Country that is a State Sponsor of Terrorism	DEC 2014
252.223-7004	Drug Free Work Force	SEP 1988
252.225-7002	Qualifying Country Sources As Subcontractors	DEC 2012
252.225-7002	Qualifying Country Sources As Subcontractors	DEC 2012
252.227-7000	Non-estoppel	OCT 1966
252.227-7001	Release Of Past Infringement	AUG 1984
252.227-7013	Rights in Technical Data--Noncommercial Items	FEB 2014
252.227-7014	Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation	FEB 2014
252.227-7015	Technical Data--Commercial Items	FEB 2014
252.227-7016	Rights in Bid or Proposal Information	JAN 2011

252.227-7017	Identification and Assertion of Use, Release, or Disclosure Restrictions	JAN 2011
252.227-7019	Validation of Asserted Restrictions--Computer Software	SEP 2011
252.227-7027	Deferred Ordering Of Technical Data Or Computer Software	APR 1988
252.227-7028	Technical Data or Computer Software Previously Delivered to the Government	JUN 1995
252.227-7030	Technical Data--Withholding Of Payment	MAR 2000
252.227-7037	Validation of Restrictive Markings on Technical Data	JUN 2013
252.243-7001	Pricing Of Contract Modifications	DEC 1991
252.243-7002	Requests for Equitable Adjustment	DEC 2012
252.245-7001	Tagging, Labeling, and Marking of Government-Furnished Property	APR 2012
252.245-7002	Reporting Loss of Government Property	APR 2012
252.245-7003	Contractor Property Management System Administration	APR 2012
252.245-7004	Reporting, Reutilization, and Disposal	MAR 2015
252.246-7001	Warranty Of Data	MAR 2014
252.247-7022	Representation Of Extent Of Transportation Of Supplies By Sea	AUG 1992

CLAUSES INCORPORATED BY FULL TEXT

52.223-3 HAZARDOUS MATERIAL IDENTIFICATION AND MATERIAL SAFETY DATA (JAN 1997)

(a) "Hazardous material", as used in this clause, includes any material defined as hazardous under the latest version of Federal Standard No. 313 (including revisions adopted during the term of the contract).

(b) The offeror must list any hazardous material, as defined in paragraph (a) of this clause, to be delivered under this contract. The hazardous material shall be properly identified and include any applicable identification number, such as National Stock Number or Special Item Number. This information shall also be included on the Material Safety Data Sheet submitted under this contract.

Material (If none, insert "None")	Identification No.
___	___
___	___
___	___

(c) This list must be updated during performance of the contract whenever the Contractor determines that any other material to be delivered under this contract is hazardous.

(d) The apparently successful offeror agrees to submit, for each item as required prior to award, a Material Safety Data Sheet, meeting the requirements of 29 CFR 1910.1200(g) and the latest version of Federal Standard No. 313, for all hazardous material identified in paragraph (b) of this clause. Data shall be submitted in accordance with Federal Standard No. 313, whether or not the apparently successful offeror is the actual manufacturer of these items. Failure to submit the Material Safety Data Sheet prior to award may result in the apparently successful offeror being considered nonresponsible and ineligible for award.

(e) If, after award, there is a change in the composition of the item(s) or a revision to Federal Standard No. 313, which renders incomplete or inaccurate the data submitted under paragraph (d) of this clause, the Contractor shall

promptly notify the Contracting Officer and resubmit the data.

(f) Neither the requirements of this clause nor any act or failure to act by the Government shall relieve the Contractor of any responsibility or liability for the safety of Government, Contractor, or subcontractor personnel or property.

(g) Nothing contained in this clause shall relieve the Contractor from complying with applicable Federal, State, and local laws, codes, ordinances, and regulations (including the obtaining of licenses and permits) in connection with hazardous material.

(h) The Government's rights in data furnished under this contract with respect to hazardous material are as follows:

(1) To use, duplicate and disclose any data to which this clause is applicable. The purposes of this right are to--

(i) Apprise personnel of the hazards to which they may be exposed in using, handling, packaging, transporting, or disposing of hazardous materials;

(ii) Obtain medical treatment for those affected by the material; and

(iii) Have others use, duplicate, and disclose the data for the Government for these purposes.

(2) To use, duplicate, and disclose data furnished under this clause, in accordance with subparagraph (h)(1) of this clause, in precedence over any other clause of this contract providing for rights in data.

(3) The Government is not precluded from using similar or identical data acquired from other sources.

(End of clause)

52.244-2 SUBCONTRACTS (OCT 2010)

(a) Definitions. As used in this clause--

Approved purchasing system means a Contractor's purchasing system that has been reviewed and approved in accordance with Part 44 of the Federal Acquisition Regulation (FAR).

Consent to subcontract means the Contracting Officer's written consent for the Contractor to enter into a particular subcontract.

Subcontract means any contract, as defined in FAR Subpart 2.1, entered into by a subcontractor to furnish supplies or services for performance of the prime contract or a subcontract. It includes, but is not limited to, purchase orders, and changes and modifications to purchase orders.

(b) When this clause is included in a fixed-price type contract, consent to subcontract is required only on unpriced contract actions (including unpriced modifications or unpriced delivery orders), and only if required in accordance with paragraph (c) or (d) of this clause.

(c) If the Contractor does not have an approved purchasing system, consent to subcontract is required for any subcontract that—

(1) Is of the cost-reimbursement, time-and-materials, or labor-hour type; or

(2) Is fixed-price and exceeds—

(i) For a contract awarded by the Department of Defense, the Coast Guard, or the National Aeronautics and Space Administration, the greater of the simplified acquisition threshold or 5 percent of the total estimated cost of the contract; or

(ii) For a contract awarded by a civilian agency other than the Coast Guard and the National Aeronautics and Space Administration, either the simplified acquisition threshold or 5 percent of the total estimated cost of the contract.

(d) If the Contractor has an approved purchasing system, the Contractor nevertheless shall obtain the Contracting Officer's written consent before placing the following subcontracts:

(e)(1) The Contractor shall notify the Contracting Officer reasonably in advance of placing any subcontract or modification thereof for which consent is required under paragraph (b), (c), or (d) of this clause, including the following information:

(i) A description of the supplies or services to be subcontracted.

(ii) Identification of the type of subcontract to be used.

(iii) Identification of the proposed subcontractor.

(iv) The proposed subcontract price.

(v) The subcontractor's current, complete, and accurate certified cost or pricing data and Certificate of Current Cost or Pricing Data, if required by other contract provisions.

(vi) The subcontractor's Disclosure Statement or Certificate relating to Cost Accounting Standards when such data are required by other provisions of this contract.

(vii) A negotiation memorandum reflecting—

(A) The principal elements of the subcontract price negotiations;

(B) The most significant considerations controlling establishment of initial or revised prices;

(C) The reason certified cost or pricing data were or were not required;

(D) The extent, if any, to which the Contractor did not rely on the subcontractor's certified cost or pricing data in determining
the price objective and in negotiating the final price;

(E) The extent to which it was recognized in the negotiation that the subcontractor's certified cost or pricing data were not accurate, complete, or current; the action taken by the Contractor and the subcontractor; and the effect of any such defective data on the total price negotiated;

(F) The reasons for any significant difference between the Contractor's price objective and the price negotiated; and

(G) A complete explanation of the incentive fee or profit plan when incentives are used. The explanation shall identify each critical performance element, management decisions used to quantify each incentive element, reasons for the incentives, and a summary of all trade-off possibilities considered.

(2) The Contractor is not required to notify the Contracting Officer in advance of entering into any subcontract for which consent is not required under paragraph (c), (d), or (e) of this clause.

(f) Unless the consent or approval specifically provides otherwise, neither consent by the Contracting Officer to any subcontract nor approval of the Contractor's purchasing system shall constitute a determination—

(1) Of the acceptability of any subcontract terms or conditions;

(2) Of the allowability of any cost under this contract; or

(3) To relieve the Contractor of any responsibility for performing this contract.

(g) No subcontract or modification thereof placed under this contract shall provide for payment on a cost-plus-a-percentage-of-cost basis, and any fee payable under cost-reimbursement type subcontracts shall not exceed the fee limitations in FAR 15.404-4(c)(4)(i).

(h) The Contractor shall give the Contracting Officer immediate written notice of any action or suit filed and prompt notice of any claim made against the Contractor by any subcontractor or vendor that, in the opinion of the Contractor, may result in litigation related in any way to this contract, with respect to which the Contractor may be entitled to reimbursement from the Government.

(i) The Government reserves the right to review the Contractor's purchasing system as set forth in FAR Subpart 44.3.

(j) Paragraphs (c) and (e) of this clause do not apply to the following subcontracts, which were evaluated during negotiations:

_____

_____

(End of clause)

52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es):

http://farsite.hill.af.mil/vffara.htm

(End of clause)

52.252-3 ALTERATIONS IN SOLICITATION (APR 1984)

Portions of this solicitation are altered as follows:

TBD

52.252-4 ALTERATIONS IN CONTRACT (APR 1984)

Portions of this contract are altered as follows:

TBD

(End of clause)

252.211-7003 ITEM UNIQUE IDENTIFICATION AND VALUATION (DEC 2013)

(a) Definitions. As used in this clause'

Automatic identification device means a device, such as a reader or interrogator, used to retrieve data encoded on machine-readable media.

Concatenated unique item identifier means--

(1) For items that are serialized within the enterprise identifier, the linking together of the unique identifier data elements in order of the issuing agency code, enterprise identifier, and unique serial number within the enterprise identifier; or

(2) For items that are serialized within the original part, lot, or batch number, the linking together of the unique identifier data elements in order of the issuing agency code; enterprise identifier; original part, lot, or batch number; and serial number within the original part, lot, or batch number.

Data Matrix means a two-dimensional matrix symbology, which is made up of square or, in some cases, round modules arranged within a perimeter finder pattern and uses the Error Checking and Correction 200 (ECC200) specification found within International Standards Organization (ISO)/International Electrotechnical Commission (IEC) 16022.

Data qualifier means a specified character (or string of characters) that immediately precedes a data field that defines the general category or intended use of the data that follows.

DoD recognized unique identification equivalent means a unique identification method that is in commercial use and has been recognized by DoD. All DoD recognized unique identification equivalents are listed at http://www.acq.osd.mil/dpap/pdi/uid/iuid_equivalents.html.

DoD item unique identification means a system of marking items delivered to DoD with unique item identifiers that have machine-readable data elements to distinguish an item from all other like and unlike items. For items that are serialized within the enterprise identifier, the unique item identifier shall include the data elements of the enterprise identifier and a unique serial number. For items that are serialized within the part, lot, or batch number within the enterprise identifier, the unique item identifier shall include the data elements of the enterprise identifier; the original part, lot, or batch number; and the serial number.

Enterprise means the entity (e.g., a manufacturer or vendor) responsible for assigning unique item identifiers to items.

Enterprise identifier means a code that is uniquely assigned to an enterprise by an issuing agency.

Government's unit acquisition cost means--

(1) For fixed-price type line, subline, or exhibit line items, the unit price identified in the contract at the time of delivery;

(2) For cost-type or undefinitized line, subline, or exhibit line items, the Contractor's estimated fully burdened unit cost to the Government at the time of delivery; and

(3) For items produced under a time-and-materials contract, the Contractor's estimated fully burdened unit cost to the Government at the time of delivery.

Issuing agency means an organization responsible for assigning a globally unique identifier to an enterprise (e.g., Dun & Bradstreet's Data Universal Numbering System (DUNS) Number, GS1 Company Prefix, Allied Committee 135 NATO Commercial and Government Entity (NCAGE)/Commercial and Government Entity (CAGE) Code, or the Coded Representation of the North American Telecommunications Industry Manufacturers, Suppliers, and Related Service Companies (ATIS-0322000) Number), European Health Industry Business Communication Council (EHIBCC) and Health Industry Business Communication Council (HIBCC)), as indicated in the Register of Issuing Agency Codes for ISO/IEC 15459, located at http://www.nen.nl/Normontwikkeling/Certificatieschemas-en-keurmerken/Schemabeheer/ISOIEC-15459.htm.

Issuing agency code means a code that designates the registration (or controlling) authority for the enterprise identifier.

Item means a single hardware article or a single unit formed by a grouping of subassemblies, components, or constituent parts.

Lot or batch number means an identifying number assigned by the enterprise to a designated group of items, usually referred to as either a lot or a batch, all of which were manufactured under identical conditions.

Machine-readable means an automatic identification technology media, such as bar codes, contact memory buttons, radio frequency identification, or optical memory cards.

Original part number means a combination of numbers or letters assigned by the enterprise at item creation to a class of items with the same form, fit, function, and interface.

Parent item means the item assembly, intermediate component, or subassembly that has an embedded item with a unique item identifier or DoD recognized unique identification equivalent.

Serial number within the enterprise identifier means a combination of numbers, letters, or symbols assigned by the enterprise to an item that provides for the differentiation of that item from any other like and unlike item and is never used again within the enterprise.

Serial number within the part, lot, or batch number means a combination of numbers or letters assigned by the enterprise to an item that provides for the differentiation of that item from any other like item within a part, lot, or batch number assignment.

Serialization within the enterprise identifier means each item produced is assigned a serial number that is unique among all the tangible items produced by the enterprise and is never used again. The enterprise is responsible for ensuring unique serialization within the enterprise identifier.

Serialization within the part, lot, or batch number means each item of a particular part, lot, or batch number is assigned a unique serial number within that part, lot, or batch number assignment. The enterprise is responsible for ensuring unique serialization within the part, lot, or batch number within the enterprise identifier.

Type designation means a combination of letters and numerals assigned by the Government to a major end item, assembly or subassembly, as appropriate, to provide a convenient means of differentiating between items having the same basic name and to indicate modifications and changes thereto.

Unique item identifier means a set of data elements marked on items that is globally unique and unambiguous. The term includes a concatenated unique item identifier or a DoD recognized unique identification equivalent.

Unique item identifier type means a designator to indicate which method of uniquely identifying a part has been used. The current list of accepted unique item identifier types is maintained at http://www.acq.osd.mil/dpap/pdi/uid/uii_types.html.

(b) The Contractor shall deliver all items under a contract line, subline, or exhibit line item.

(c) Unique item identifier. (1) The Contractor shall provide a unique item identifier for the following:

(i) Delivered items for which the Government's unit acquisition cost is $5,000 or more, except for the following line items:

Contract line, subline, or exhibit line item No.	Item description
.....	

(ii) Items for which the Government's unit acquisition cost is less than $5,000 that are identified in the Schedule or the following table:

Contract line, subline, or exhibit line item No.	Item description
.....	

(If items are identified in the Schedule, insert ``See Schedule'' in this table.)

(iii) Subassemblies, components, and parts embedded within delivered items, items with warranty requirements, DoD serially managed reparables and DoD serially managed nonreparables as specified in Attachment Number ----.

(iv) Any item of special tooling or special test equipment as defined in FAR 2.101 that have been designated for preservation and storage for a Major Defense Acquisition Program as specified in Attachment Number ----.

(v) Any item not included in paragraphs (c)(1)(i), (ii), (iii), or

(iv) of this clause for which the contractor creates and marks a unique item identifier for traceability.

(2) The unique item identifier assignment and its component data element combination shall not be duplicated on any other item marked or registered in the DoD Item Unique Identification Registry by the contractor.

(3) The unique item identifier component data elements shall be marked on an item using two dimensional data matrix symbology that complies with ISO/IEC International Standard 16022, Information technology--International symbology specification--Data matrix; ECC200 data matrix specification.

(4) Data syntax and semantics of unique item identifiers. The Contractor shall ensure that--

(i) The data elements (except issuing agency code) of the unique item identifier are encoded within the data matrix symbol that is marked on the item using one of the following three types of data qualifiers, as determined by the Contractor:

(A) Application Identifiers (AIs) (Format Indicator 05 of ISO/IEC International Standard 15434), in accordance with ISO/IEC International Standard 15418, Information Technology--EAN/UCC Application Identifiers and Fact Data Identifiers and Maintenance and ANSI MH 10.8.2 Data Identifier and Application Identifier Standard.

(B) Data Identifiers (DIs) (Format Indicator 06 of ISO/IEC International Standard 15434), in accordance with ISO/IEC International Standard 15418, Information Technology--EAN/UCC Application Identifiers and Fact Data Identifiers and Maintenance and ANSI MH 10.8.2 Data Identifier and Application Identifier Standard.

(C) Text Element Identifiers (TEIs) (Format Indicator 12 of ISO/IEC International Standard 15434), in accordance with the Air Transport Association Common Support Data Dictionary; and

(ii) The encoded data elements of the unique item identifier conform to the transfer structure, syntax, and coding of messages and data formats specified for Format Indicators 05, 06, and 12 in ISO/IEC International Standard 15434, Information Technology-Transfer Syntax for High Capacity Automatic Data Capture Media.

(5) Unique item identifier.

(i) The Contractor shall--

(A) Determine whether to--

(1) Serialize within the enterprise identifier;

(2) Serialize within the part, lot, or batch number; or

(3) Use a DoD recognized unique identification equivalent (e.g. Vehicle Identification Number); and

(B) Place the data elements of the unique item identifier (enterprise identifier; serial number; DoD recognized unique identification equivalent; and for serialization within the part, lot, or batch number only: Original part, lot, or batch number) on items requiring marking by paragraph (c)(1) of this clause, based on the criteria provided in MIL-STD-130, Identification Marking of U.S. Military Property, latest version;

(C) Label shipments, storage containers and packages that contain uniquely identified items in accordance with the requirements of MIL-STD-129, Military Marking for Shipment and Storage, latest version; and

(D) Verify that the marks on items and labels on shipments, storage containers, and packages are machine readable and conform to the applicable standards. The contractor shall use an automatic identification technology device for this verification that has been programmed to the requirements of Appendix A, MIL-STD-130, latest version.

(ii) The issuing agency code--

(A) Shall not be placed on the item; and

(B) Shall be derived from the data qualifier for the enterprise identifier.

(d) For each item that requires item unique identification under paragraph (c)(1)(i), (ii), or (iv) of this clause or when item unique identification is provided under paragraph (c)(1)(v), in addition to the information provided as part of the Material Inspection and Receiving Report specified elsewhere in this contract, the Contractor shall report at the time of delivery, as part of the Material Inspection and Receiving Report, the following information:

(1) Unique item identifier.

(2) Unique item identifier type.

(3) Issuing agency code (if concatenated unique item identifier is used).

(4) Enterprise identifier (if concatenated unique item identifier is used).

(5) Original part number (if there is serialization within the original part number).

(6) Lot or batch number (if there is serialization within the lot or batch number).

(7) Current part number (optional and only if not the same as the original part number).

(8) Current part number effective date (optional and only if current part number is used).

(9) Serial number (if concatenated unique item identifier is used).

(10) Government's unit acquisition cost.

(11) Unit of measure.

(e) For embedded subassemblies, components, and parts that require DoD unique item identification under paragraph (c)(1)(iii) of this clause, the Contractor shall report as part of, or associated with, the Material Inspection and Receiving Report specified elsewhere in this contract, the following information:

(1) Unique item identifier of the parent item under paragraph (c)(1) of this clause that contains the embedded subassembly, component, or part.

(2) Unique item identifier of the embedded subassembly, component, or part.

(3) Unique item identifier type.**

(4) Issuing agency code (if concatenated unique item identifier is used).**

(5) Enterprise identifier (if concatenated unique item identifier is used).**

(6) Original part number (if there is serialization within the original part number).**

(7) Lot or batch number (if there is serialization within the lot or batch number).**

(8) Current part number (optional and only if not the same as the original part number).**

(9) Current part number effective date (optional and only if current part number is used).**

(10) Serial number (if concatenated unique item identifier is used).**

(11) Description.

(12) Type designation of the item as specified in the contract schedule, if any.

(13) Whether the item is an item of Special Tooling or Special Test Equipment.

(14) Whether the item is covered by a warranty.

** Once per item.

(e) For embedded subassemblies, components, and parts that require DoD item unique identification under paragraph (c)(1)(iii) of this clause or when item unique identification is provided under paragraph

(c)(1)(v), the Contractor shall report as part of the Material Inspection and Receiving Report specified elsewhere in this contract, the following information:

(f) The Contractor shall submit the information required by paragraphs (d) and (e) of this clause as follows:

(1) End items shall be reported using the receiving report capability in Wide Area WorkFlow (WAWF) in accordance with the clause at 252.232-7003. If WAWF is not required by this contract, and the contractor is not using WAWF, follow the procedures at http://dodprocurementtoolbox.com/site/uidregistry/.

(2) Embedded items shall be reported by one of the following methods--

(i) Use of the embedded items capability in WAWF;

(ii) Direct data submission to the IUID Registry following the procedures and formats at http://dodprocurementtoolbox.com/site/uidregistry/; or

(iii) Via WAWF as a deliverable attachment for exhibit line item number (fill in) ----, Unique Item Identifier Report for Embedded Items, Contract Data Requirements List, DD Form 1423.

(g) Subcontracts. If the Contractor acquires by contract any items for which item unique identification is required in accordance with paragraph (c)(1) of this clause, the Contractor shall include this clause, including this paragraph (g), in the applicable subcontract(s), including subcontracts for commercial items.

(End of clause)

Section J - List of Documents, Exhibits and Other Attachments

DOCUMENT ATTACHMENTS

	ATTACHMENTS
Attachment 1	Contract Data Requirements List (CDRLs)
Attachment 2	Performance Specification
Attachment 3	Past Performance Questionnaire
Attachment 4	Scheduled Government Furnished Property

ATTACHMENT 2-PERFORMANCE SPEC

PRF EPS-0803
21 August 2015

PERFORMANCE SPECIFICATION
MOBILE ELECTRIC HYBRID POWER SOURCES
LIGHT AND MEDIUM
GENERAL SPECIFICATION FOR

This specification is approved for use by the Marine Corps Systems Command and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1. Scope. This performance specification covers the general requirements for the Mobile Electric Hybrid Power Sources - Light (MEHPS-L) and Medium (MEHPS-M).

1.2. Classification. MEHPS system are of the following sizes:

SIZE: 5 kilowatt (kW), MEHPS Light (MEHPS-L)
10-15 kW, MEHPS Medium (MEHPS-M)

2. APPLICABLE DOCUMENTS

2.1. General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections 3 and 4 of this specification, whether or not they are listed.

2.2. Government documents.

2.2.1. Specifications, standards, and handbooks. The following specifications, standards, and handbooks of the exact revision listed below form a part of this specification to the extent specified herein.

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-461F	-	Requirements for the Control of Electromagnetic Interference Characteristics of Subsystems and Equipment
MIL-STD-810G	-	Department of Defense Test Method Standard
MIL-STD-1275E	-	Characteristics of 28 Volt DC Electrical Systems in Military Vehicles
MIL-STD-1332B	-	Definitions of Tactical, Prime, Precise, and Utility Terminologies for Classification of the DoD Mobile Electric Power Engine Generator Set Family
MIL-STD-1472G	-	Department of Defense Design Criteria Standard: Human Engineering

MIL-STD-1474 - Department of Defense Design Criteria Standard: Noise Limits
MIL-STD-3009 - Department of Defense Interface Standard

(Copies of these documents are available online at http://quicksearch.dla.mil.)

FEDERAL STANDARDS

FED-STD-595 - Colors Used in Government Procurement

2.2.2. Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications of the exact revision level shown form a part of this document to the extent specified herein.

NAVAL SEA SYSTEMS COMMAND

SG270-BV-SAF-010 - High-Energy Storage System Safety Manual
S9310-AQ-SAF-010 - Navy Lithium Battery Safety Program Responsibilities and Procedures

(Copies of these documents are available from Naval Weapons Support Center, Code 3057, Building 36, Crane, IN 47522-5060.)

CODE OF FEDERAL REGULATIONS

Title 49, Part 173 - Shippers – General Requirements for Shipments and Packages

(Copies of this document are available online at http://www.gpo.gov/fdsys/browse/collectionCfr.action?collectionCode=CFR.)

2.3. Non-Government publications. The following documents of the exact revision listed below form a part of this document to the extent specified herein.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

ASME Y14.38 - Abbreviations and Acronyms

(Copies of this document are available from www.asme.org.)

ASTM INTERNATIONAL

ASTM D 3591 - Standard Practice for Commercial Packaging

(Copies of this document are available from www.astm.org.)

NATIONAL FIRE PROTECTION AGENCY

NFPA70 - National Electric Code

(Copies of this document are available from www.nfpa.org.)

USB IMPLEMENTERS FORUM

Universal Serial Bus Micro-USB Cables and Connectors Specification Revision 1.01
Universal Serial Bus Specification Revision 3.0
Universal Serial Bus Power Delivery Specification

(Copies of these specifications are available online from USB-IF at http://www.usb.org)

2.4. Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein (except for related specification sheets), the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1. Specification sheets. This specification is broken into two sections: general MEHPS requirements (PRF EPS-0803) and specification sheets specific to MEHPS-Light (PRF EPS-0803/1) and MEHPS-Medium (PRF EPS-0803/2). Both the general requirement and the specification sheet for a variant apply to that variant. Specification sheets are located after the general specification in this document. In the event of any conflict between the general requirement and the specification sheet, the latter shall govern.

3.2. Generator inclusion. Unless otherwise specified, all system level requirements include the Government Furnished generator to be used with the system.

3.3. Key performance requirements.

3.3.1. Fuel consumption. The individual system fuel consumption requirements shall be as specified in the specification sheets for Light and Medium (PRF EPS-0803/1 and PRF EPS-0803/2).

3.3.2. AC power quality. The MEHPS alternating current (AC) output power quality shall be IAW MIL-STD-1332B. Power class requirements shall be as specified in the specification sheets for Light and Medium (PRF EPS-0803/1 and PRF EPS-0803/2). (Threshold (T) = Objective (O))

3.3.3. DC power quality. If direct current (DC) output power is available, the DC output power shall be nominally 28 Volts DC (VDC) and power quality shall be IAW MIL-STD-1275E power quality requirements. (T=O)

3.3.4. Output power type. The MEHPS shall provide AC power output (T) / AC and DC power output (O) as specified in the specification sheets for Light and Medium (PRF EPS-0803/1 and PRF EPS-0803/2).

3.3.5. Reliability. The individual system reliability requirement shall be as specified in the specification sheets for Light and Medium (PRF EPS-0803/1 and PRF EPS-0803/2).

3.3.6. Mean Time to Repair. The Mean Time to Repair (see 6.1.4) shall not exceed 1.5 hours. This requirement does not include corrective maintenance actions to the generator. (T=O)

3.3.7. Maximum repair time. The maximum repair time shall not exceed 2 hours. This requirement does not include corrective maintenance actions to the generator. (T=O)

3.4. Modularity.

3.4.1. System modularity. The energy storage modules (T) / all system components (O) shall be the same for both MEHPS-L and MEHPS-M, but the components may be used in different quantities to make each system. (i.e., the cables or inverters used for the MEHPS-L and MEHPS-M are the same design and packaging but a different quantity is used for each system.)

3.4.2. Component modularity. Components with similar functions within the same system shall be of the same design. (T=O)

3.5. Physical.

3.5.1. Set-up and Teardown.

3.5.1.1. Set-up time. It shall take no more than 40 minutes (T) / 20 minutes (O) for 6 Marines to set-up the system. This set-up time includes every action that needs to be performed

to make the system capable of meeting all requirements pertaining to system operation starting from a system that is fully prepared for transportation.

3.5.1.2. Start-up time. It shall take no more than 1 minute (T) / 30 seconds (O) for the system to be able to provide the full rated output power after set-up is complete.

3.5.1.3. Start-up time under excessive climatic conditions. If conditions exceed the basic climatic conditions (see 6.1.1), it shall take no more than 5 minutes (T) / 2 minutes (O) for the system to provide full rated power after set-up is complete.

3.5.1.4. Teardown time. It shall take no more than 40 minutes (T) / 20 minutes (O) for 6 Marines to tear down the system. This teardown times includes every action that needs to be performed to make the system fully ready for transportation and capable of meeting all transportability requirements in both the general specification and individual specification sheets for Light and Medium (PRF EPS-0803/1 and PRF EPS-0803/2) starting from a system that has been fully deployed.

3.5.2. Human Interface.

3.5.2.1. User interaction. Once fully set-up and operating, the system shall not require any user interaction to react to varying loads presented to the system. (T=O)

3.5.2.2. Display contents. The system shall display the following information on the main control panel:

- Power flow between all system components (T) including individual phase power and voltage on multi-phase connections (O)
- System output power (T) including individual phase power and voltage on multi-phase connections (O)
- Generator input power (T) including individual phase power and voltage on multi-phase connections (O)
- State of charge of each energy storage module (T)
- Total system run time (T)
- System faults (T)
- Current system mode (see 3.6.7) (T)
- Silent watch time available (O)
- Battery cycles and age (state of health information) (O)
- Generator fuel level (O)

3.5.2.3. Remote monitoring and control. A capability shall be provided to allow a user to remotely monitor and control the system from up to 20 feet away from the main control panel. This remote capability shall allow a user to view and control all of the same functions as the main control panel. (O)

3.5.2.4. Software/firmware version display. For any system component that has updateable software or firmware, excluding the generator, the system shall be able to display the current software/firmware version. (T=O)

3.5.2.5. Visibility. All controls and indicators, excluding those on the generator, shall be visible during all environmental and weather conditions. (T=O)

3.5.2.6. Display blackout. The system shall have the ability to eliminate all visible light from all displays while set-up and running. (T=O)

3.5.2.7. Night vision compatibility. Displays or indicators shall prevent direct / indirect glare from affecting operator vision and when using night vision imaging systems. (T=O)

3.5.2.8. Color perception. Interpretation of status indicators shall not rely on the user's color perception. (T=O)

3.5.2.9. Cold weather set up. The system shall be able to be set up while personnel are wearing combat and cold weather uniforms. (T=O)

3.5.2.10. Mission Oriented Protective Posture (MOPP) controls. The system controls shall be operational by personnel wearing combat, cold weather, and MOPP Level-IV uniforms. (T=O)

3.5.2.11. Breaker traceability. Devices, such as breakers or switches, which control a specific input or output, shall be labeled with the name of that input or output and easily traceable to the input or output the device is designed to control or protect. (T=O)

3.5.2.12. Breaker visibility. A 5^{th} to 95^{th} percentile Marine standing 2 feet from a panel shall be able to visually determine the position of all breakers and switches used on that panel. (T=O)

3.5.2.13. Breaker access. All control devices, such as breakers, switches and touchscreens, used in system shall have unobstructed access from at least one (T) / three (O) direction(s) when the system is fully set-up. Straight down will not be counted as a direction. Breakers or safety devices housed under a protective cover for weather resistance shall be considered unobstructed.

3.5.2.14. Breaker protection. All breakers and switches shall be placed in a way so as to avoid accidental activation or deactivation. (T=O)

3.5.3. Stackable components. When in transport configuration, all components shall be stackable with other components of the same footprint up to 4 high without damage incurring (T). System shall have alignment mechanism to improve stacking alignment and rigidity (O).

3.5.4. Component size. All components must have sufficient space and handles to allow the requisite number of personnel to lift the object IAW MIL-STD-1472G. (T=O)

3.5.5. Color. All component cases shall be the same color and either tan, green, or black. (T=O)

3.5.6. Component labels. All components shall have a label that contains (T=O):

- System name
- Component name
- Component part number
- Component NSN, if assigned
- Manufacturer name
- Manufacturer CAGE code
- Component weight
- Component person lift requirement, if over 1 person

3.5.7. Label permanence and durability. All labels and markings on all components of the system shall show no evidence of blistering, delamination, separation, discoloration, chipping, dissolving, softening, illegibility, corrosion, loosening, splitting, flaking, cracking, peeling, warping, or fading after meeting all requirements of this specification. (T=O)

3.6. Electrical

3.6.1. Power level. System input and output power levels are specified in the specification sheets for Light and Medium (PRF EPS-0803/1 and PRF EPS-0803/2).

3.6.2. Output synchronization. The system shall have the ability to synchronize voltage, frequency, and relative phase angle between two systems in order to allow transfer of load from one MEHPS to another without interrupting output power. (O)

3.6.2.1. Output paralleling. The MEHPS shall have the ability to parallel multiple systems to allow for a greater total power output. (O)

3.6.3. System start-up. The system shall be able to conduct system start-up from both generator power and energy storage module power. (T=O)

3.6.4. Power output control. After start-up, the system shall require user input prior to output power being available at the output terminals. The device used for this purpose shall deactivate whenever the system is shut down. Shut down is considered a total loss of power to and from all components, excluding the generator. The user input device shall be located on the main control panel. (T=O)

3.6.5. Output power indicator. The system shall have an indicator showing when output power is active. If an LED is used for this indicator, it shall be red in color. (T=O)

3.6.6. DC input. The system shall accept DC input power. (O)

3.6.6.1. DC input voltage. If the system accepts a DC input, it shall be able to accept inputs in the 22-32 VDC range. (T=O)

3.6.6.2. DC input power quality. If the system accepts DC input power, it shall be able to accept power of a quality IAW MIL-STD-1275E. (T=O)

3.6.7. System operational modes. The MEHPS shall have three operational modes: generator only mode, silent watch mode, and hybrid mode. Selection of operational mode shall happen via the main control panel. (T=O) Further description of the modes is provided:

- Hybrid mode shall allow the system to operate autonomously and meet all fuel consumption requirements of this specification and the specification sheets for Light and Medium (PRF EPS-0803/1 and PRF EPS-0803/2).
- Generator only mode shall start the generator and not shut it down while this mode is activated. This mode shall not override any generator shutdown faults. Fuel consumption requirements do not apply when in this mode. The system may charge batteries when in this mode.
- Silent watch mode shall implement silent watch IAW 3.6.8, 3.6.9, and 3.8.10 of this specification.

3.6.8. Silent watch. During silent watch, the system shall not emit audible noise discernible at 65.6 feet IAW MIL-STD-1474E Appendix C Level I non-detectability limits. (T=O)

3.6.9. Silent watch planning. The system shall have the ability to execute a planned silent watch IAW the specification sheets for Light and Medium (PRF EPS-0803/1 and PRF EPS-0803/2). This ability shall allow the user to fully charge the batteries and perform any other actions needed for silent watch (T). The system shall also provide the user with feedback indicating silent watch time available (O).

3.6.10. Silent watch activation. Silent watch mode shall be able to be activated by a user at any time via the main control panel. (T=O) If silent watch has not been planned (see 3.6.9), silent watch need not be provided for the full length of time specified in the specification sheets.

3.6.11. Embedded batteries. The system shall not contain any batteries other than the energy storage modules. Coin cells used for data backup or time keeping are acceptable but shall have a minimum of a 7 year maintenance cycle. Batteries internal to the system generator shall remain unmodified. (T=O)

3.6.12. Solar utilization. The system shall be optimized to best utilize generator and solar power at the same time while limiting poor generator efficiency and loss of available solar power. This shall be measured through the system's ability to accept a minimum of 80% of available solar power while the generator is also providing power. (T=O)

3.6.13. Convenience receptacles. Two convenience receptacles shall be provided on the system and they shall be NEMA 5-15 connectors. (T=O)

3.6.14. Convenience receptacle power. Convenience receptacles shall provide Class 2C utility power IAW MIL-STD-1332B. (T=O)

3.6.15. USB power port. The system shall have 4 USB outlets with a 2A capability per outlet. (O) For security reasons, no data connection shall be available on these receptacles.

3.6.16. Emergency Stop Switch. A maintaining-push-to-activate switch shall be provided to disconnect output power within 150 milliseconds, stop the generator (if running), and disconnect the control power upon activation. Activation of the emergency stop shall not adversely affect the system. There shall be no more than 1mA current drawn from any power source when the switch is activated. The switch shall be labeled "EMERGENCY STOP" and "PUSH TO STOP". The emergency stop switch shall be located to reduce the possibility of accidental actuation when operating other generator controls. (T) If the emergency stop switch on the generator is activated, it shall perform all of the same functions as the emergency stop switch on the main system. (O)

3.6.17. Battle short switch. A switch shall be provided on the main control panel of the system which will prevent shutdown of the system or interruption of output power under the action of any safety or protective device except short circuit, energy storage over temperature, and energy storage over charge or discharge. It shall be provided with a hinged red cover that can be quickly raised to provide access to the switch and which returns the switch to "OFF" when lowered. The system shall not be able to be started unless this switch is in the "OFF" position.

The switch shall be labeled "BATTLE SHORT", "ON" in the up position, "OFF" in the down position. (T=O)

3.6.18. Power source switching. When switching between different power sources such as generator, solar or energy storage, the system shall have no interruption in power output or quality beyond what is allowed in MIL-STD-1332B. This includes changes of system modes and unplanned failure of the generator. (T=O)

3.6.19. Low power factor. The system shall be able to operate at a power factor of 0.4 lagging and experience no failures or damage. (T=O)

3.6.20. Generator start failure. If the system generator fails to start for any reason the system shall warn the user. (T=O)

3.6.21. System shutdown. The system shall have a controlled response to component failures, such as the generator, that allows the system to shut down without tripping breakers or other power interrupting faults. (T=O)

3.6.22. Universal Serial Bus (USB) upgrade port. The system shall have one USB 2.0 interface Micro-B data receptacle compliant with Universal Serial Bus Micro-USB Cables and Connectors Specification. This port shall be configured to allow loading of software / firmware updates. The USB Data receptacle shall be protected by a flat cover when not in use. The use of a #1 or #2 Phillips screwdriver is permitted for the user to access this port. (T) This port shall also be an access point for downloading system faults and accessing internally logged data, which includes the parameters displayed on the main control panel. (O)

3.7. Environmental. The system and all components, when exposed to the conditions of 3.7, shall show no evidence of structural damage, misalignment or malfunction of components, leaks, fractures, abnormal vibrations, or any other irregular operation and shall continue to operate at all performance levels stated in section 3. (T=O)

3.7.1. Operational temperature. The system shall start and operate at full rated load at temperatures from -25°F to 125°F at sea level. (T=O)

3.7.2. Storage temperature. The system and all components shall experience no malfunction or degradation of performance after storage in temperatures from -40°F to 160°F. (T=O)

3.7.3. Altitude operation. The system shall start and operate at full rated load at temperatures from -25°F to 95°F at 4,000 feet above sea level. (T=O)

3.7.4. High altitude operation. The system shall start and operate with derating not to exceed the generator's derating at temperatures from -25°F to 95°F at 8,000 feet (T) / 10,000 (O) feet above sea level.

3.7.5. Humidity. The system shall be able to operate in at least 95% non-condensing relative humidity at 131° F without damage. (T=O)

3.7.6. Rain resistance. The system and all components shall not incur damage or degradation of performance when exposed to blowing rain. (T=O)

3.7.7. Immersion. The system and all components shall be able to with stand immersion while in their transport configuration. (T=O)

3.7.8. Salt fog. The system shall not incur degradation of performance after exposure to a salt fog atmosphere. (T=O)

3.7.9. Dissimilar metals. When dissimilar metals, which would adversely affect performance, are used in direct contact with each other, protection against electrolysis and corrosion shall be provided. (T=O)

3.7.10. Sand and dust. The system shall not incur degradation of performance or function in an environment with blowing sand and dust. (T=O)

3.7.11. Electromagnetic interference (EMI).

3.7.11.1. Conducted emissions. In all operational modes, the system shall not exceed the CE102 conducted emissions levels found in MIL-STD-461F with a 16.4 foot standoff distance (T) / with no standoff distance (O).

3.7.11.2. Radiated emissions. In all operational modes, the system shall not exceed the RE102 Ground, Navy Mobile & Army radiated emissions levels found in MIL-STD-461F with a 16.4 foot standoff distance (T) / with no standoff distance (O).

3.7.11.3. Radiated magnetic susceptibility. In all operational modes, the system shall not exhibit any malfunction or degradation of performance when subjected to a radiated magnetic field IAW the Navy requirements of RS101 in MIL-STD-461F (T=O)

3.7.11.4. Radiated electric susceptibility. In all operational modes, the system shall not exhibit any malfunction or degradation of performance when subjected to radiated electric fields in the 2 MHz to 10 GHz range IAW the Navy Ground requirements of RS103 in MIL-STD-461F. (T=O)

3.7.11.5. Conducted susceptibility bulk cable injection frequency range. In all operational modes, the system shall not exhibit any malfunction or degradation of performance when subjected to injected probe drive IAW the Navy Ground requirements of CS114 in MIL-STD-461F. (O)

3.7.11.6. Conducted susceptibility bulk cable injection impulse excitation. In all operational modes, the system shall not exhibit any malfunction or degradation of performance when subjected to the signal specified in CS115 of MIL-STD-461F. (O)

3.7.11.7. Conducted susceptibility, damped sinusoidal transients. In all operational modes, the system shall not exhibit any malfunction of degradation of performance when subjected to the signal specified in CS116 of MIL-STD-461F. (O)

3.7.12. Chemical, Biological, Radiological, and Nuclear (CBRN) attack. The system, excluding the generator, shall be able to be decontaminated after a CBRN attack (T). The decontamination shall be able to be performed while personnel are wearing MOPP Level IV uniforms (O).

3.8. Transportability

3.8.1. Road profile. The system and all individual components, when transported on any tactical vehicle in the USMC inventory, shall be capable of operating over the mission profile

described in MIL-STD-810G, method 514.6, Annex C, Category 4. (T=O) This requirement does not include the generator.

3.8.2. System employment angle. The system and all individual components shall operate on uneven terrain with omni-directional grades up to 15 degrees. (T=O)

3.8.3. Transit Drop. All system components, excluding the generator, over 100 lbs. shall not incur degradation of performance after being dropped 8 times from a height of 30 inches with the component in any orientation. (T=O) All system components of 100 lbs. or less shall not incur degradation of performance after being dropped 8 times from a height of 48 inches with the component in any orientation. (T=O) The system as a whole will not be subject to this requirement, however, all components shall individually survive transit drop.

3.9. System storage.

3.9.1. Storage preparation. Preparation for storage by two Marines shall not exceed 1 hour for all system components with the exception of charging energy storage modules. (T=O) This time includes any action that needs to be performed to prepare the system to be stored in an unused state for periods greater than one year.

3.9.2. Removal from storage. It shall take less than 1 hour for two Marines to make the system provide full output power after storage. This excludes the time required to recharge the energy storage. (T=O) This time includes any action that needs to be performed to ready the system to provide full output power starting from the state described in 3.9.1.

3.10. Safety

3.10.1. Energy storage access. Electrochemical cells and electronics used in the energy storage module shall not be accessible to a user without the use of tools. If accessible with tools the energy storage module shall be able to be resealed to its IP67 rating without the need of additional material such as new o-rings, or RTV type sealants. (T=O)

3.10.2. Shock hazard. All components of the system shall incorporate methods to protect personnel from inadvertent contact with live voltage, including under fault conditions. (T=O)

3.10.3. Ground fault circuit interrupt. Any convenience receptacle provided on the system shall have Ground Fault Circuit Interrupt protection. (T=O)

3.10.4. Fault protection. The system shall automatically protect itself from faults. (T=O)

3.10.4.1. Fault display. The system shall display all faults on the main control panel. Activation of any protective device is considered a fault. (T=O)

3.10.4.2. Fault shutdown. The system shall visibly warn the user of impending shutdown due to fault. (T=O)

3.10.4.3. Fault reset. Faults, excluding generator faults and safety related faults such as those listed in 3.10.5, shall automatically reset if the fault condition clears. (T=O)

3.10.4.4. Fault reset switch. The system shall have a fault reset switch that simultaneously clears all system faults, excluding generator faults and system breaker trips. (T=O)

3.10.4.5. Critical fault persistence. Critical faults resulting in power output disruption shall not be cleared without user input. (T=O)

3.10.4.6. Generator fault. Generator faults shall be communicated on the main control panel. (O)

3.10.5. Electrical interruption protective devices.

3.10.5.1. Over/under voltage. The system shall provide over/under voltage protection for the AC output that shall activate in not more than 1.25 seconds after the voltage sensed at the output exceeds rated voltage by 30 percent (over voltage protection), and shall activate in not more than 8 seconds when the voltage sensed is 30 percent less than rated voltage (under voltage protection). Upon activation, a fault shall be displayed on the main control panel. (T=O)

3.10.5.2. Overload. The system shall provide overload protection to prevent damage to the system when the current exceeds 110% rated current. It shall trip within 3 minutes for 130% of rated current. The overload protection function shall simultaneously interrupt main output power and deactivate the convenience receptacles upon activation and display a fault on the main control panel. (T=O)

3.10.5.3. External short circuit. The system shall provide short circuit protection to prevent damage to the system and safety hazards. The short circuit protection function shall activate within 50 milliseconds in the event system output current exceeds 375 ±25 percent of the maximum current rating for all output power connections. Within 150 milliseconds after the short circuit is applied all output power shall be interrupted, all output power receptacles shall be deactivated, and a fault shall be displayed on the main control panel. (T=O)

3.10.5.4. Internal short circuit. The system shall protect against any short circuit within and between system components. This protection shall prevent component damage and safety hazards. (T=O)

3.10.6. National Electric Code (NEC). The system shall meet the provisions of National Electric Code Article 445 for generator safety standards. (T=O)

3.10.7. Grounding. The system shall be grounded IAW NEC Article 250 for grounding and bonding. (T=O)

3.10.7.1. Solar grounding. The solar panels shall not be grounded separately from the rest of the system. (T=O)

3.10.7.2. System ground. The system shall use the generator ground for all grounding needs. (T=O)

3.10.7.3. Improper connection. The system shall present a visual warning on the main control panel when connected to the load incorrectly, ungrounded, or a ground is lost during operation. (O)

3.10.8. Warning labels. All components shall have the appropriate warning labels to warn of hazards to humans. (T=O)

3.10.8.1. Energy storage warning label. All energy storage modules shall have a warning label which states: (T=O)

WARNING
FOR USE IN DESIGNATED EQUIPMENT ONLY.

CAUTION: RECHARGE PER AUTHORIZED/APPROVED INSTRUCTIONS.
DO NOT STORE AT TEMPERATURES ABOVE 122°F (50°C) ON REGULAR BASIS, CRUSH, MUTILATE, SHORT CIRCUIT, APPLY REVERSE POLARITY, DISASSEMBLE, OR DISPOSE OF IN TRASH OR FIRE.
IF THERE IS INDICATION OF VENTING, BURNING, BULGING, EXTREMELY HOT TO TOUCH, LOCALIZED DISCOLORATION, LEAKAGE, OR ODORS, CONTACT EMERGENCY SERVICES

3.10.8.2. Silent energy system warning. The warning label shown in Figure 1shall be placed on the same face as the output of the system. (T=O)

FIGURE 1. Warning label

3.10.9. Auto-start safety. The system shall provide a warning to users prior to attempting to start a generator. (T=O)

3.11. Supportability

3.11.1. Preventive maintenance interval. The system shall not require preventive maintenance (see 6.1.7) more often than every 24 hours. (T=O) This does not include maintenance actions to the generator.

3.11.2. Preventive maintenance shutdowns. The system shall operate for 480 hours without requiring a shutdown for preventive maintenance. (T=O) This does not include maintenance actions to the generator.

3.11.3. Preventive maintenance time. Preventive maintenance tasks shall not exceed 20 minutes. (T=O) This does not include maintenance actions to the generator.

3.11.4. Scheduled maintenance interval. The system shall not require scheduled maintenance (see 6.1.6) more often than every 1000 hours of operation. (T=O) This does not include maintenance actions to the generator.

3.11.5. Scheduled maintenance time. Scheduled maintenance shall not exceed 30 minutes. (T=O) This does not include maintenance actions to the generator.

3.11.6. Tool usage – operation. Tools shall not be required to set-up or operate the system, excluding making connections to the generator during set-up. (T=O)

3.11.7. Tool usage – maintenance. Special tools shall not be required to maintain the system. Use of common tools for maintenance is acceptable. (T=O)

3.11.8. Fuses. Any fuses used in the system shall be resettable. (T=O)

3.12. Subsystem specific requirements.

3.12.1. Energy storage. This section contains minimum requirements for energy storage used in the system.

3.12.1.1. Hot-swappable energy storage. The system shall have the ability to add and remove energy storage units without interrupting the output power. (T=O)

3.12.1.2. Energy storage shelf life. The system energy storage shall have a minimum shelf life of 7 years (T) / 10 years (O). Shelf life is defined as the ability to provide 80% of its rated capacity after being fully charged after storage.

3.12.1.3. Energy storage maintenance. The system energy storage shall not require maintenance while in storage, at temperatures between 55°F to 80°F, more often than once per year (T) / once per three years (O). During storage, the state of charge shall not drop below 20%.

3.12.1.4. Energy storage maintenance charger. A capability shall be provided to allow for charging the energy storage modules from a 120 VAC, 60 Hz power source during storage from shore power (T) / from shore power without other system components aside from cables (O). This charging shall not affect safety of the battery system. (T=O)

3.12.1.5. Energy storage cycle life. The system energy storage shall not degrade to less than 80% of its rated capacity in less than 2,000 (T) / 4,000 (O) cycles to 90% depth of discharge at the C/2 rate (see 6.1.4) of the battery.

3.12.1.6. Deep discharge recovery of energy storage. Energy storage modules shall be recoverable without damage after being subject to a deep discharge and storage. The system shall have the ability to distinguish between recoverable modules and non-recoverable, damaged modules and recharge all viable energy storage modules without a safety event occurring. (T=O)

3.12.1.7. State of Charge (SOC) indicator. Energy storage modules shall have a state of charge indicator on the exterior module that is operable regardless of whether the module is connected to any other component. (T=O)

3.12.1.8. SOC accuracy. All displayed SOCs shall be accurate within 10% of the actual state of charge for the battery. (T=O)

3.12.1.9. SOC indicator display characteristics. The SOC provided on the battery shall have at least 5 distinct segments showing the percentage capacity ranges of the battery. Number of segments filled in shall correlate to the battery capacity as follows. If additional segments are used, number of segments filled in shall follow the same pattern to correlate to battery SOC. (T=O)

0	0% (Fully discharged)		
1	1	-	20%
2	21	-	40%
3	41	-	60%
4	61	-	80%
5	81	-	100%

3.12.1.10. SOC and State of Health (SOH) indicator. The display shall be able to adjust for the energy storage module state of health (SOH). As the module ages and experiences capacity fade, the display shall compensate by showing the fully charged state as a percentage of the original (fresh) capacity. (T) The display shall also indicate that the battery is charged to its present maximum available capacity. (O)

3.12.1.11. SOC agreement. The energy storage module SOC will agree with all other displayed SOC's for that module on the system. If SOC is used in the control logic for the system, the control logic shall adjust with the changing health of the battery to ensure proper overall system operation (such as generator run times). (T=O)

3.12.1.12. Cell and module balancing. The system shall balance between and within energy storage modules to increase safety, performance, and life of the battery system. (T=O)

3.12.1.13. Energy storage protective devices. Each energy storage module shall have an integrated battery management system which will manage charging and discharging to prevent venting or violent failure due to over-charge, over-discharge, over-current, and over-temperature. (T=O)

3.12.1.14. Design for safety. Batteries shall be designed and built in a manner that provides protection from bulging, leaking, venting, rupturing, burning and exploding under conditions of extreme electrical abuse. Additionally, batteries shall be designed in a manner that prevents the production of shrapnel in the event of failure of internal protection devices under extreme conditions. (T=O)

3.12.1.15. Energy storage protective device activation. When any protective device within the energy storage module activates, a fault shall be displayed on the main control panel. (T=O)

3.12.1.16. Energy storage failure propagation. The energy storage module(s) shall be designed to prevent failure propagation within and among energy storage modules. (T=O)

3.12.1.17. Energy storage safety. If the energy storage module(s) is lithium-based, it shall meet the provisions of TM-S9310-AQ-SAF-010 and SG270-BV-SAF-010. (T=O)

3.12.1.18. Energy storage shipping. If United Nations or Department of Transportation Class 9 shipping testing is required to ship the system, the energy storage module shall be able to pass this testing (T) / shall have passed this testing (O).

3.12.1.19. Energy storage shipping packaging. If the energy storage module(s) is lithium-based, it shall be shipped in compliance with 49 CFR 173.185. (T=O)

3.12.1.20. Cell protective covering. When installed in energy storage modules, each cell shall not be able to short or cause inadvertent electrical contact. The cell case shall have an individual protective coating, sleeving or electrically neutral case where necessary. (T=O)

3.12.1.21. Cell vents. Each cell shall incorporate a safety-venting device or be designed and manufactured to preclude a violent rupture. (T=O)

3.12.1.22. Potting/sealing compounds, flow and shrinkage. Insulating, impregnating, potting and sealing compounds shall not inhibit the operation of any safety features (i.e. vents, thermal management system, etc.). The insulating, impregnating, potting and sealing compounds shall not flow at high temperature, and shall not crack or draw away from the sides of a container at low temperature. Any compound used shall be non-flammable and non-toxic. (T=O)

3.12.1.23. Insulating compounds for electrical connectors, wires, and tabs. All points inside a battery that have positive and negative polarity in close proximity shall have not less than one layer of insulation between the positive and negative. (T=O)

3.12.1.24. Terminal markings. A schematic drawing of the terminals shall be placed as close as possible to the receptacle or terminal of the energy storage module. (T=O)

3.12.1.25. Energy storage immersion. Energy storage modules shall be IP-67 compliant. (T=O)

3.12.1.26. Energy storage label. In addition to the items listed in 3.5.6, energy storage module labels shall contain (T=O):

- Total capacity in Wh
- Energy density
- Chemistry of the energy storage module (i.e. Lithium Ion)
- Battery designation

3.12.2. Solar array. This section contains the minimum requirements for renewable energy sources used in the system.

3.12.2.1. System solar array. The system shall use the existing Advanced Integrated Solar Panel Case Assembly(s) (AISPCA), (see Appendix A), for renewable energy input. The main Photovoltaic (PV) array, deployment stand and tie down methods shall be used from the AISPCA

but the case and cabling may be changed if desired as long as the system is able to meet the transportability and environmental requirements of this specification. (T=O)

3.12.2.2. Solar weight and volume. The weight and volume of the solar array and all components needed in deploying and transporting the solar array shall be accounted for in the system weight, volume, and transportability considerations. (T=O)

3.12.2.3. Solar input. The system shall be designed with a maximum solar input voltage capability of at least 20% above the maximum open circuit voltage (OCV) of the panels as designed to input to the system under full solar load rating of the solar array, to accommodate potential voltage spikes. (T=O)

3.12.2.4. Solar array expansion. The system shall have the ability to add and remove solar panels without interrupting the output power. (T=O)

3.12.2.5. Solar power rating. The system solar radiance shall be assessed using the solar locations and times of year shown in Table 1. (T=O)

TABLE I. Solar radiance

Environmental Profiles	Winter	Spring / Fall 1	Spring / Fall 2	Summer
Temperature Data Location / Season	North Korea / Winter	North Korea / Spring	Afghanistan / Spring	Afghanistan / Summer
Solar Irradiance Data[1] Location / Months	North Korea / Jan-Feb	North Korea / Mar-Apr	Afghanistan / Apr-May	Afghanistan / Jun-Jul

[1] *NASA Surface Meteorology and Solar Energy Data*

3.12.3. Generator.

3.12.3.1. Generator controls. The MEHPS system shall not override the generator emergency stop control or any other generator fault shut down or de-rating control. (T=O)

3.12.3.2. Generator rating. The system shall not load the generator to a level that exceeds the nameplate rating of the generator, including when the generator is derated for temperature or altitude. (T=O)

3.12.3.3. Generator control. The system shall be able to start and stop the required generator without user input. (T=O)

3.12.3.4. Generator starting. The system shall not start the generator more than 6 times per day under any possible load profile up to the rating of the system. Effects on generator life due to frequent system starts and stops will be factored into the overall system reliability requirements. (T=O)

3.12.3.5. Generator manual mode. The generator shall have a manual mode that will allow it to operate to its original capability with its original control scheme, without the removal of any parts added to allow it to operate with the MEHPS system. (T=O)

3.12.3.6. Generator modification. All parts added to the generator in order to operate with the system shall be able to be removed to restore the generator to its original configuration. Special tools shall not be required to install or remove any component added to the generator. (T=O)

3.12.3.7. Generator battery. The system shall not degrade the generator battery to a point that prevents the generator from being able to start. (T=O)

3.12.4. Cables and connectors.

3.12.4.1. Cable quantity. The number of cables used in the system shall be minimized. Each energy storage module shall have no more than one (1) cable, solar inputs of 1500W or less shall use no more than four (4) cables greater than 30 feet long (additional interconnect cables less than 10 feet in length are acceptable), interconnects between other system components shall be limited to no more than 10 cables. (T=O)

3.12.4.2. Cable labeling. All cables shall be labeled (T) / labeled and color coded (O) for functionality. The label shall contain, at a minimum, the part number of the cable and its function. Color codes for the cable and its intended connection point shall match to allow for quick visual confirmation of proper cable location.

3.12.4.3. Cable rating. All cables shall be rated for the maximum possible current they are intended to carry at the maximum system operational temperature. (T=O)

3.12.4.4. Cable type. All cables shall be SOOW, at a minimum. (T=O)

3.12.4.5. Cable length – solar. The solar panel arrays shall have appropriate cabling to allow for a minimum deployment of 30 feet from the other system components. This distance shall be measured from the closest solar array point to the system. (T=O)

3.12.4.6. Cable length – generator. Appropriate cabling shall be provided to allow for the generator to be deployed 15 feet from other system components.(T=O)

3.12.4.7. Cable length – other. All cables, except for solar and generator cables, shall be at least 10 feet in length. (T=O)

3.12.4.8. Cable uniformity. For all functions that have multiple cables of the same type, the cables shall be identical and interchangeable. (i.e., all energy storage cables of the same function shall be the same, all solar cables of the same function shall be the same, all output cables of the same function shall be the same, etc.) (T=O)

3.12.4.9. High DC voltage cable. If DC voltage in externally connected cabling exceeds 100 VDC, cables must be labeled to warn user of this fact. (T=O)

3.12.4.10. Connector style. All connectors used on the system shall require no more than four full turns to be fully seated. (T=O)

3.12.4.11. Connector mismatch. Connectors used on the system for different functions shall have physical differences to prevent accidental mismatch of connections. (T=O)

3.12.4.12. Connector covers. All connectors used on the system shall be provided with covers that are tethered. (T=O)

3.12.4.13. Connector cover removal. All connector covers shall be removable by hand without the use of tools. (T=O)

3.12.4.14. Connector seal. All connectors shall create an IP-65 (T) / IP-67 (O) seal when cables are connected.

3.12.4.15. Connector insertions. All connectors shall maintain a fully functional interface after insertions and extractions. All electrical contacts of each connector shall be resistant to corrosion and shall be capable of withstanding a minimum of 500 insertion and extraction cycles. (T=O)

3.13. Government-furnished property. The Government will furnish the appropriate size generator to be used in the development of the systems. Specific generators will be listed in the specification sheets for Light and Medium (PRF EPS-0803/1 and PRF EPS-0803/2). The government will also furnish the solar arrays to be used in the system.

4. VERIFICATION

4.1. Inspection conditions. Unless otherwise specified, all inspections shall be performed in accordance with the test conditions specified in applicable test method document or applicable paragraphs in the PSpec.

4.2. Verification matrix. The test verification will be as shown in Table II. Nonconformance to the applicable requirement paragraph shown in column 1 shall constitute failure of the test and shall be cause for rejection of the system. The test methods shown in column 7 will be used as guidance for the verification of the requirement. The Government reserves the right to reject the equipment for not meeting any requirement herein, even though not performing a test directly related to the specific requirement. The requirements in section 3 shall apply to all tests performed as a part of another test. If a scheduled maintenance action is due after the beginning of any test, the shutdown shall be postponed until completion of the test or until completion of 100 hours of operation, whichever is lesser.

Table II. Verification matrix

Requirement		Verification Method				Test Method or Test Paragraph
Number	**Name**	**Inspect**	**Analyze**	**Demonstrate**	**Test**	
3.3	Key performance requirements					N/A
3.3.1	Fuel consumption				**x**	4.3.1
3.3.2	AC power quality				**x**	MIL-STD-1332B
3.3.3	DC power quality				**x**	MIL-STD-1275E
3.3.4	Output power type				**x**	
3.3.5	Reliability				**x**	MIL-STD-705C Method 695.1 and 4.3.2
3.3.6	Mean Time to Repair				**x**	
3.3.7	Maximum repair time				**x**	
3.4 3.4.1	Modularity System modularity			**x**		N/A
3.4.2	Component modularity			**x**		
3.5	Physical					N/A
3.5.1	Set-up and teardown					N/A
3.5.1.1	Set-up time				**x**	
3.5.1.2	Start-up time				**x**	
3.5.1.3	Start-up time under excessive climatic conditions				**x**	
3.5.1.4	Teardown time				**x**	
3.5.2	Human interface					N/A
3.5.2.1	User interaction			**x**		
3.5.2.2	Display contents	**x**				
3.5.2.3	Remote monitoring and control			**x**		
3.5.2.4	Software/firmware version display	**x**				
3.5.2.5	Visibility	**x**				
3.5.2.6	Display blackout			**x**		
3.5.2.7	Night vision compatibility	**x**				
3.5.2.8	Color perception	**x**				
3.5.2.9	Cold weather set up		**x**			
3.5.2.10	Mission Oriented Protective Posture (MOPP) controls		**x**			

Requirement		Verification Method				Test Method or Test Paragraph
Number	**Name**	**Inspect**	**Analyze**	**Demonstrate**	**Test**	
3.5.2.11	Breaker traceability	**x**				
3.5.2.12	Breaker visibility			**x**		
3.5.2.13	Breaker access			**x**		
3.5.2.14	Breaker protection	**x**				
3.5.3	Stackable components				**x**	
3.5.4	Component size				**x**	
3.5.5	Color	**x**				
3.5.6	Component labels	**x**				
3.5.7	Label permanence and durability			**x**		
3.6	Electrical					N/A
3.6.1	Power level					N/A
3.6.2	Output synchronization				**x**	
3.6.2.1	Output paralleling				**x**	
3.6.3	System start-up			**x**		
3.6.4	Power output control			**x**		
3.6.5	Output power indicator			**x**		
3.6.6	DC input				**x**	
3.6.6.1	DC input voltage				**x**	MIL-STD-1275E
3.6.6.2	DC input power quality				**x**	MIL-STD-1275E
3.6.7	System operational modes			**x**		
3.6.8	Silent watch				**x**	MIL-STD-1474E
3.6.9	Silent watch planning				**x**	
3.6.10	Silent watch activation			**x**		
3.6.11	Embedded batteries	**x**				
3.6.12	Solar utilization				**x**	4.3.3
3.6.13	Convenience receptacles	**x**				
3.6.14	Convenience receptacle power				**x**	MIL-STD-1332B
3.6.15	USB power port				**x**	
3.6.16	Emergency stop switch				**x**	
3.6.17	Battle short switch			**x**		
3.6.18	Power source switching				**x**	
3.6.19	Low power factor				**x**	

Requirement		Verification Method				Test Method or Test Paragraph
Number	**Name**	**Inspect**	**Analyze**	**Demonstrate**	**Test**	
3.6.20	Generator start failure			**x**		
3.6.21	System shutdown			**x**		
3.6.22	USB upgrade port			**x**		
3.7	Environmental			**x**		
3.7.1	Operational temperature				**x**	MIL-STD-810G Method 501.5 Procedure II and Method 502.5 Procedure II
3.7.2	Storage temperature				**x**	MIL-STD-810G Method 501.5 Procedure I and Method 502.5 Procedure I
3.7.3 3.7.4	Altitude operation High altitude operation				**x** **x**	
3.7.5	Humidity				**x**	MIL-STD-810G Method 507.5
3.7.6	Rain resistance				**x**	MIL-STD-810G Method 506.5, Procedure I
3.7.7	Immersion				**x**	MIL-STD-810G Method 512.5, Procedure I
3.7.8	Salt fog				**x**	MIL-STD-810G Method 509.5
3.7.9	Dissimilar metals		**x**			
3.7.10	Sand and dust				**x**	MIL-STD-810G Method 510.5
3.7.11	Electromagnetic interference (EMI)					N/A
3.7.11.1	Conducted emissions				**x**	MIL-STD-461F CE102
3.7.11.2	Radiated emissions				**x**	MIL-STD-461F RE102
3.7.11.3	Radiated magnetic susceptibility				**x**	MIL-STD-461F RS101
3.7.11.4	Radiated electric susceptibility				**x**	MIL-STD-461F RS102
3.7.11.5	Conducted susceptibility bulk cable injection frequency range				**x**	MIL-STD-461F CS114

Requirement		Verification Method				Test Method or Test Paragraph
Number	**Name**	**Inspect**	**Analyze**	**Demonstrate**	**Test**	
3.7.11.6	Conducted susceptibility bulk cable injection impulse excitation				**x**	MIL-STD-461F CS115
3.7.11.7	Conducted susceptibility , damped sinusoidal transients				**x**	MIL-STD-461F CS116
3.7.12	Chemical, Biological, Radiological, and Nuclear (CBRN) attack		**x**			
3.8	Transportability					N/A
3.8.1	Road profile				**x**	MIL-STD-810G Method 514.6 Procedure III
3.8.2	System employment angle				**x**	
3.8.3	Transit drop				**x**	MIL-STD-810G Method 516.6, Procedure IV
3.9	System storage					N/A
3.9.1	Storage preparation			**x**		
3.9.2	Removal from storage			**x**		
3.10	Safety					N/A
3.10.1	Energy storage access	**x**				
3.10.2	Shock hazard		**x**			
3.10.3	Ground fault circuit interrupt		**x**			
3.10.4	Fault protection			**x**		
3.10.4.1	Fault display			**x**		
3.10.4.2	Fault shutdown			**x**		
3.10.4.3	Fault reset			**x**		
3.10.4.4	Fault reset switch			**x**		
3.10.4.5	Critical fault persistence			**x**		
3.10.4.6	Generator fault			**x**		
3.10.5	Electrical interruption protective devices					N/A
3.10.5.1	Over/under voltage				**x**	
3.10.5.2	Overload				**x**	

Requirement		Verification Method				Test Method or Test Paragraph
Number	**Name**	**Inspect**	**Analyze**	**Demonstrate**	**Test**	
3.10.5.3	External short circuit				**x**	
3.10.5.4	Internal short circuit				**x**	
3.10.6	National Electric Code	**x**				
3.10.7	Grounding	**x**				
3.10.7.1	Solar grounding	**x**				
3.10.7.2	System ground	**x**				
3.10.7.3	Improper connection			**x**		
3.10.8	Warning labels	**x**				
3.10.8.1	Energy storage warning label	**x**				
3.10.8.2	Silent energy system warning	**x**				
3.10.9	Auto-start safety			**x**		
3.11	Supportability					N/A
3.11.1 3.11.2	Preventive maintenance interval Preventive maintenance shutdowns		**x** **x**			
3.11.3	Preventive maintenance time		**x**			
3.11.4	Scheduled maintenance interval		**x**			
3.11.5	Scheduled maintenance time		**x**			
3.11.6	Tool usage - operation	**x**				
3.11.7	Tool usage - maintenance	**x**				
3.11.8	Fuses	**x**				
3.12	Subsystem specific requirements					N/A
3.12.1	Energy storage					N/A
3.12.1.1	Hot-swappable energy storage			**x**		
3.12.1.2	Energy storage shelf life		**x**			
3.12.1.3	Energy storage maintenance		**x**			
3.12.1.4	Energy storage maintenance charger				**x**	
3.12.1.5	Energy storage life cycle				**x**	
3.12.1.6	Deep discharge recovery of energy storage				**x**	
3.12.1.7	State of charge (SOC) indicator			**x**		
3.12.1.8	SOC accuracy				**x**	

Requirement		Verification Method				Test Method or Test Paragraph
Number	**Name**	**Inspect**	**Analyze**	**Demonstrate**	**Test**	
3.12.1.9	SOC indicator display characteristics	**x**				
3.12.1.10	SOC and state of health (SOH) indicator			**x**		
3.12.1.11	SOC agreement	**x**				
3.12.1.12	Cell and module balancing		**x**			
3.12.1.13	Energy storage protective devices			**x**		
3.12.1.14	Design for safety			**x**		
3.12.1.15	Energy storage protective device activation			**x**		
3.12.1.16	Energy storage failure propagation		**x**			
3.12.1.17	Energy storage safety				**x**	
3.12.1.18	Energy storage shipping	**x**				
3.12.1.19 3.12.1.20	Energy storage shipping packaging Cell protective coating	**x** **x**				
3.12.1.21	Cell vents		**x**			
3.12.1.22	Potting/sealing compounds, flow and shrinkage		**x**			
3.12.1.23	Insulating compounds for electrical connectors, wires, and tabs		**x**			
3.12.1.24	Terminal markings	**x**				
3.12.1.25	Energy storage immersion				**x**	MIL-STD-810G Method 512.5, Procedure I
3.12.1.26	Energy storage label	**x**				
3.12.2	Solar array					N/A
3.12.2.1	System solar array	**x**				
3.12.2.2	Solar weight and volume		**x**			
3.12.2.3	Solar input				**x**	
3.12.2.4	Solar array expansion			**x**		
3.12.2.5	Solar power rating				**x**	
3.12.3	Generator					N/A
3.12.3.1	Generator controls		**x**			

Requirement		Verification Method				Test Method or Test Paragraph
Number	**Name**	**Inspect**	**Analyze**	**Demonstrate**	**Test**	
3.12.3.2	Generator rating			**x**		
3.12.3.3	Generator control			**x**		
3.12.3.4	Generator starting			**x**		
3.12.3.5	Generator manual mode			**x**		
3.12.3.6	Generator modification			**x**		
3.12.3.7	Generator battery				**x**	
3.12.4	Cables and connectors					N/A
3.12.4.1	Cable quantity	**x**				
3.12.4.2	Cable labeling	**x**				
3.12.4.3	Cable rating		**x**			
3.12.4.4	Cable type	**x**				
3.12.4.5	Cable length - solar	**x**				
3.12.4.6	Cable length – generator	**x**				
3.12.4.7	Cable length - other	**x**				
3.12.4.8	Cable uniformity	**x**				
3.12.4.9	High DC voltage cable	**x**				
3.12.4.10	Connector style	**x**				
3.12.4.11	Connector mismatch	**x**				
3.12.4.12	Connector covers	**x**				
3.12.4.13	Connector cover removal	**x**				
3.12.4.14	Connector seal				**x**	
3.12.4.15	Connector insertions		**x**			
	MEHPS-Light					
3.1	Key performance requirements					N/A
3.1.1	Fuel consumption					N/A
3.1.1.1	Fuel consumption load profile				**x**	4.3.1
3.1.1.2	Fuel consumption at no load				**x**	4.3.1
3.1.1.3	Fuel consumption at low loads				**x**	4.3.1
3.1.1.4	Fuel consumption at middle loads				**x**	4.3.1
3.1.1.5	Fuel consumption at high loads				**x**	4.3.1
3.1.1.6	Fuel consumption with no solar				**x**	4.3.1
3.1.2	AC power quality				**x**	MIL-STD-1332B

Requirement		Verification Method				Test Method or Test Paragraph
Number	**Name**	**Inspect**	**Analyze**	**Demonstrate**	**Test**	
3.1.2.1	TQG AC power quality				**x**	MIL-STD-1332B
3.1.3	Reliability				**x**	MIL-STD-705C Method 695.1 and 4.3.2
3.2	Physical					N/A
3.2.1	Component weight				**x**	
3.2.2	System weight				**x**	
3.2.3	System volume				**x**	
3.3	Electrical					N/A
3.3.1	System generator				**x**	
3.3.2	AC power rating				**x**	
3.3.2.1	Output DC power level				**x**	
3.3.3	Output AC connector					N/A
3.3.4	Input AC power level				**x**	
3.3.5	Input solar power level				**x**	
3.3.6	Input DC power level				**x**	
3.3.7 3.3.8	Silent watch Silent watch maximum power				**x** **x**	
3.4	Transportability					N/A
3.4.1	Loose Cargo Bounce				**x**	MIL-STD-810G Method 514.6 Procedure II
	MEHPS-Medium					
3.1	Key performance requirements					N/A
3.1.1	Fuel consumption					N/A
3.1.1.1	Fuel consumption load profile				**x**	4.3.1
3.1.1.2	Fuel consumption at no load				**x**	4.3.1
3.1.1.3	Fuel consumption at low loads				**x**	4.3.1
3.1.1.4	Fuel consumption at middle load				**x**	4.3.1
3.1.1.5	Fuel consumption at high loads				**x**	4.3.1
3.1.1.6	Fuel consumption with no solar				**x**	4.3.1
3.1.2	AC power quality				**x**	MIL-STD-1332B
3.1.3	Reliability				**x**	MIL-STD-705C Method 695.1 and 4.3.2
3.2	Physical					N/A

Requirement		Verification Method				Test Method or Test Paragraph
Number	**Name**	**Inspect**	**Analyze**	**Demonstrate**	**Test**	
3.2.1	Component weight				**x**	
3.2.1.1	Component weight, over 3 foot lift				**x**	
3.2.1.2	Component weight, over 5 foot lift				**x**	
3.2.2	System weight				**x**	
3.2.3	System volume				**x**	
3.2.4	Deployment configuration				**x**	
3.3	Electrical					N/A
3.3.1	System generator				**x**	
3.3.2	AC power rating				**x**	
3.3.2.1	Output DC power level				**x**	
3.3.3	Output AC connector	**x**				
3.3.4	Input AC power level				**x**	
3.3.5	Input solar power level				**x**	
3.3.6	Input DC power level				**x**	
3.3.7	Silent watch				**x**	
3.3.8	Silent watch maximum power				**x**	
3.4	Transportability					N/A
3.4.1	System trailer	**x**				
3.4.1.1	LTT-MCC components	**x**				
3.4.1.2	LTT-MCC center of gravity		**x**			
3.4.1.3	Trailer mounting	**x**				
3.4.1.4	Trailer mounting time				**x**	
3.4.1.5	Trailer mounting tools	**x**				
3.4.1.6	Trailer modifications	**x**				
3.4.1.7	Generator configuration	**x**				
3.4.1.8	Sling load configuration			**x**	**x**	
3.4.2	Rail impact		**x**		**x**	
3.4.3	Marine transport		**x**			
3.4.4	Highway transport		**x**			
3.4.5	Air transport		**x**			
3.4.6	External helicopter transport		**x**			

Requirement		Verification Method				Test Method or Test Paragraph
Number	**Name**	**Inspect**	**Analyze**	**Demonstrate**	**Test**	
3.4.7	Secured cargo transport				**x**	MIL-STD-810G Method 514.6 Procedure I

4.3. Test procedures

4.3.1. Fuel consumption test. Fuel consumption is defined as the system's average fuel consumption over a discrete period of time rather than an instantaneous value. Test duration and data analysis shall be conducted and analyzed in terms of system cycles during a given load profile. For a consistent system energy balance during each load profile, a cycle shall be defined as:

1) The main energy storage device shall start at 100% of its used capacity when charged autonomously by the system's generator and end with 100% of its used capacity.
2) Each cycle should consist of a full discharge of the energy storage device, when running autonomously and not in silent watch mode, followed by a full charge of the energy storage device, as charged autonomously by the system's generator. Note: A full discharge cycle may consist of several partial cycles at which point a generator is required to maintain system stability and replenish the energy storage device as defined by the manufacturer.
3) Each cycle shall include at least (1) full simulated diurnal profile.

Each test shall start at the same time in the diurnal cycle and three consecutive cycles shall be conducted to calculate a fuel consumption value. If a system does not cycle at certain load steps, it will be noted and run until a steady state condition is achieved, in which the generator runs continuously or is not required to run.

4.3.2. Reliability test. This test may be performed in conjunction with the fuel consumption test. MIL-STD-705C Method 695.1 will be used as a guide for the test with modifications to make it applicable to hybrid systems (including instrumentation and loads). The test will be performed for a minimum of 2,000 hours for the MEHPS-Light system and a minimum of 3,000 hours for the MEHPS-Medium system. Power quality will be tested every 500 hours (minimum). Scheduled maintenance will be performed as specified by the manufacturer throughout the test.

4.3.3. Solar utilization test. Data for this test may be collected during any tests during which a solar input is present. Data will be collected to show the amount of solar power available, the amount of solar power being accepted by the system, and whether or not the generator is running. During times when the generator is running, the amount of solar power accepted by the system will be compared to that available from either the solar simulator or solar panels being used.

5. PACKAGING

5.1. Packaging. Best commercial practices shall be used in packaging equipment for shipping.

6. NOTES

6.1. Definitions.

6.1.1. Threshold requirements. Threshold - [T] are essential requirements that must be met to meet the minimum capabilities of the system.

6.1.2. Objective requirements. Objectives - [O] requirements are value added capabilities above the minimum system requirements.

6.1.3. Basic climatic conditions. Basic climatic conditions include temperatures ranging from -25°F to 110°F and relative humidity ranging from 0% to 100%. Further definition of these conditions can be found in MIL-STD-810G.

6.1.4. C rate. C rate is the Amp discharge or recharge rate divided by the Amp-hour capacity of the battery stated as a fraction (e.g. if a battery is 10 Ah and is being discharged at 5A then it is being discharged at C/2 rate).

6.1.5. Essential function failure. An essential function failure is the inability of the system to provide its primary function of delivering the required output power at the required quality.

6.1.6. Mean time to repair. A basic measure of maintainability. The sum of corrective maintenance times at any specific level of repair, divided by the total number of failures within an item repaired at that level, during a particular interval under stated conditions.

6.1.7. Preventive maintenance. The care and servicing by personnel for the purpose of maintaining equipment and facilities in satisfactory operating condition by providing for systematic inspection, detection, and correction of incipient failures either before they occur or before they develop into major defects. Preventive maintenance is performed on an “as needed” basis.

6.1.8. Scheduled maintenance. Maintenance that is performed on a regular interval, such as hours of operation or calendar time.

6.1.9. Government-furnished property. The contracting officer should arrange to furnish the property listed in 3.13.

APPENDIX A
ADVANCED INTEGRATED SOLAR PANEL CASE ASSEMBLY

A.1. SCOPE.

A.1.1. Scope. This Appendix provides background information on the solar panels which are mandatory for use in the system. This information is provided for use in planning the design of the MEHPS systems. This Appendix is not a mandatory part of the specification. The information contained herein is intended for guidance only.

A.2. OVERVIEW.

A.2.1. Overview. The AISPCA consists of four tri-fold, high efficiency Photovoltaic (PV) panels that together generate 420 Watts of power, a rollable support stand, and securing stakes and sandbags, which all fit into a waterproof transport case. The support stand allows for manual selection of panel angles of 0, 30, and 45 degrees. Figure A-1 shows the AISPCA case with solar array inside. Figure A-2 and Table A-I provide a list of the components that make up the AISPCA. Figure A-3 shows the array support stand. Figure A-4 shows the array support stand with two of the four tri-fold PV panels attached. Table A-II provides the characteristics of the PV panel and Table A-III provides the characteristics of the PV array.

FIGURE A-1. AISPCA packaged for transport

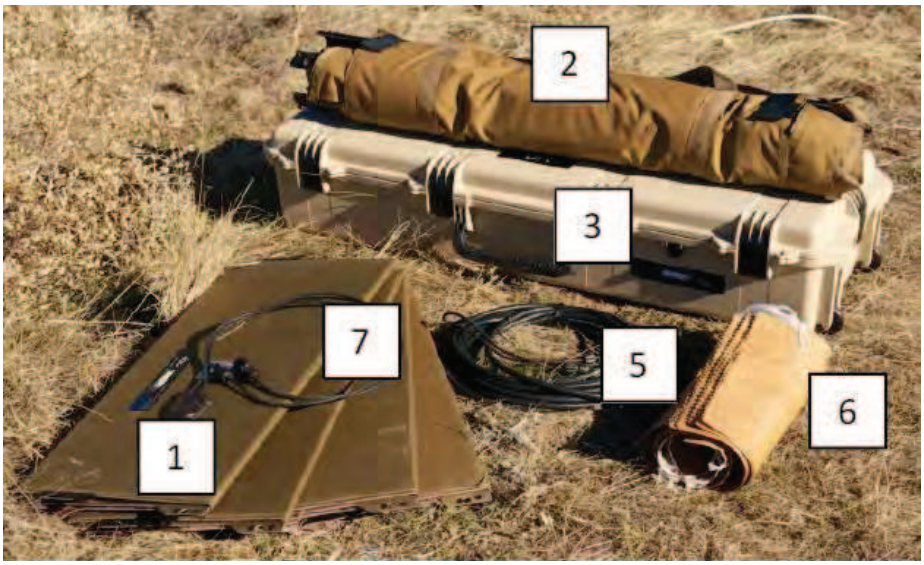


FIGURE A-2. AISPCA components (see Table A-I)

TABLE A-I. AISPCA components (see Figure A-2)

#	Component
1	Four (4) tri-fold solar panels
2	Rollable stand with canvas cover and quick look instructions
3	Rugged transport case
4	Not used
5	Collector cable
6	(12) sandbags and (10) tent stakes
7	Solar panel leads with easy connect/disconnect fittings

FIGURE A-3. AISPCA support stand

FIGURE A-4. AISPCA support stand with two PV panels

TABLE A-II. PV panel specifications

PV Panel Specifications	
Maximum Power (Pmax)	105W
Rated Voltage (Vmp)	13.06V
Rated Current (Imp)	8.67 A
Open Circuit Voltage (Voc)	15.72 V
Short Circuit Current (Isc)	9.39 A
Max Fuse Rating	15 A
Weight lbs. (kg)	6.0 lb. (2.72 kg)
Power to Weight Ratio:	38.6 W/kg
Dimensions inch (Metric) (open)	29.50” x 40.50” x 0.2” (749mm x 1029mm x 5mm)
Dimensions inch (Metric) (folded)	29.50”x 13.5” x 1.5” (749mm x 343 mm x 38mm)
Module Area ft2 (m2)	7.14 sf (0.66m2)
Power Density W/m	158.2W/m2
Diodes per module	1
Mono Crystalline Solar Cells	24 of 156 mm
Cell Efficiency	20.00%
Module Efficiency	16.00%
Temperature coefficient: Pmmp	-0.4 %/K

TABLE A-III. PV array characteristics

PV Array Characteristics	
Foldable Panels	Quantity 4

Rated Power (Pmax)	420 W
Total Weight (Rollable Array, Solar Panels, Case, Etc.	73.5 lbs
Solar Panel Weight Total	26.4 lbs
Rollable Stand Weight	16 lbs
Max-Power Array Voltage (Vmp)	49.8 V
Max-Power Array Current (Imp)	8.3 A
Open Circuit Voltage (Voc)	61.36 V
Short Circuit Current (Isc)	9.47 A
Bypass Diode (One per Solar Panel)	SPV1001D40
Temperature Coefficient (Isc)	0.0455 %/K
Temperature Coefficient (Voc)	.- 0.3055 %/K
Temperature Coefficient (Pmax)	.-0.391 %/K
NOCT	45° +/-2° C
Cell Efficiency	20.00%
Module Efficiency	17.80%
Module Power per Area	15.4 W/ft2
Maximum System Voltage	600VDC
Maximum System Current	30A
Deployed Footprint	42” x 114”
Active Module Area	6.38 ft2
Transport Dimensions LxWxH	47.20" x 16.50" x 9.20”
Collection Cable	35 feet
AISPCA Connector (ITT Cannon)	CA3106F20-23SB
Solar Panel Connector Male (Amphenol PN)	H4CMC4D
Solar Panel Connector Female (Amphenol PN)	H4CFC4D
Case Volume	4.15 cuft
Deployment Angles	0°, 30°, 45°
Wind Rating	50 mph

APPENDIX B
GENERATOR INFORMATION

B.1. SCOPE

B.1.1. Scope. This Appendix provides background information on the generators which can be used to help plan the design of the MEHPS systems. This Appendix is not a mandatory part of the specification. The information contained herein is intended for guidance only.

B.2. 3 KW TACTICAL QUIET GENERATOR (TQG).

B.2.1. Overview. The 3 kW TQG is a tactical, multi-fuel, diesel engine driven, single-phase electrical power source, rated to 3 kW at 0.8 power factor lagging.

B.2.2. Physical characteristics. Physical characteristics can be found in Table B-I.

TABLE B-I. 3 kW TQG physical characteristics

Characteristic	Value
Weight, dry	304.0 lbs.
Weight, wet, fully fueled	334.0 lbs.
Noise, 23 feet	72 dBA
Noise, operator position	85 dBA
Dimensions	34.8 x 27.8 x 26.5 in

B.2.3. Fuel consumption. Fuel consumption can be found in Table B-II.

TABLE B-II. 3 kW TQG fuel consumption (JP-8)

Percent of rated load	Fuel consumption (gal/hr)
0	0.14
25	0.18
50	0.22
75	0.28
100	0.34

B.3. 5 KW ADVANCED MEDIUM MOBILE POWER SOURCES (AMMPS).

B.3.1. Overview. The 5 kW AMMPS is a tactical, multi-fuel, diesel engine driven, three-phase electrical power source, rated to 5 kW at 0.8 power factor lagging.

B.3.2. Physical characteristics. Physical characteristics can be found in Table B-I.

TABLE B-I. 5 kW AMMPS physical characteristics

Characteristic	Value
Weight, dry	750 lbs.
Weight, wet, 80% fueled	796 lbs.
Noise, 23 feet	68 dBA
Dimensions	45 x 32 x 36 in

B.3.3. Fuel consumption. Fuel consumption can be found in Table B-II.

TABLE B-II. 5 kW AMMPS fuel consumption (JP-8)

Percent of rated load	Fuel consumption (gal/hr)
0	0.16
25	0.24

50	0.34
75	0.42
100	0.48

B.4. 10 KW AMMPS.

B.4.1. Overview. The 10 kW AMMPS is a tactical, multi-fuel, diesel engine driven, three-phase electrical power source rated to 10 kW at 0.8 power factor lagging.

B.4.2. Physical characteristics. Physical characteristics can be found in Table B-III.

TABLE B-III. 10 kW AMMPS physical characteristics

Characteristic	Value
Weight, dry	995 lbs.
Weight, wet, 80% fueled	1073.5 lbs.
Noise, 23 feet	68 dBA
Dimensions	55 x 32 x 36 in

B.4.3. Fuel consumption. Fuel consumption can be found in Table B-IV.

TABLE B-IV. 10 kW AMMPS fuel consumption (JP-8)

Percent of rated load	Fuel consumption (gal/hr)
0	0.23
25	0.37
50	0.50
75	0.67
100	0.86

B.5. 15 KW AMMPS.

B.5.1. Overview. The 15 kW AMMPS is a tactical, multi-fuel, diesel engine driven, three-phase electrical power source rated to 15 kW at 0.8 power factor lagging.

B.5.2. Physical characteristics. Physical characteristics can be found in Table B-III.

TABLE B-V. 15 kW AMMPS physical characteristics

Characteristic	Value
Weight, dry	1,795 lbs.
Weight, wet, 80% fueled	1,878 lbs.
Noise, 23 feet	70 dBA
Dimensions	65 x 36 x 53 in

B.5.3. Fuel consumption. Fuel consumption can be found in Table B-IV.

TABLE B-VI. 15 kW AMMPS fuel consumption (JP-8)

Percent of rated load	Fuel consumption (gal/hr)
0	0.28
25	0.46
50	0.70
75	0.97
100	1.21

APPENDIX C
TRAILER RAIL SYSTEM

C.1. SCOPE

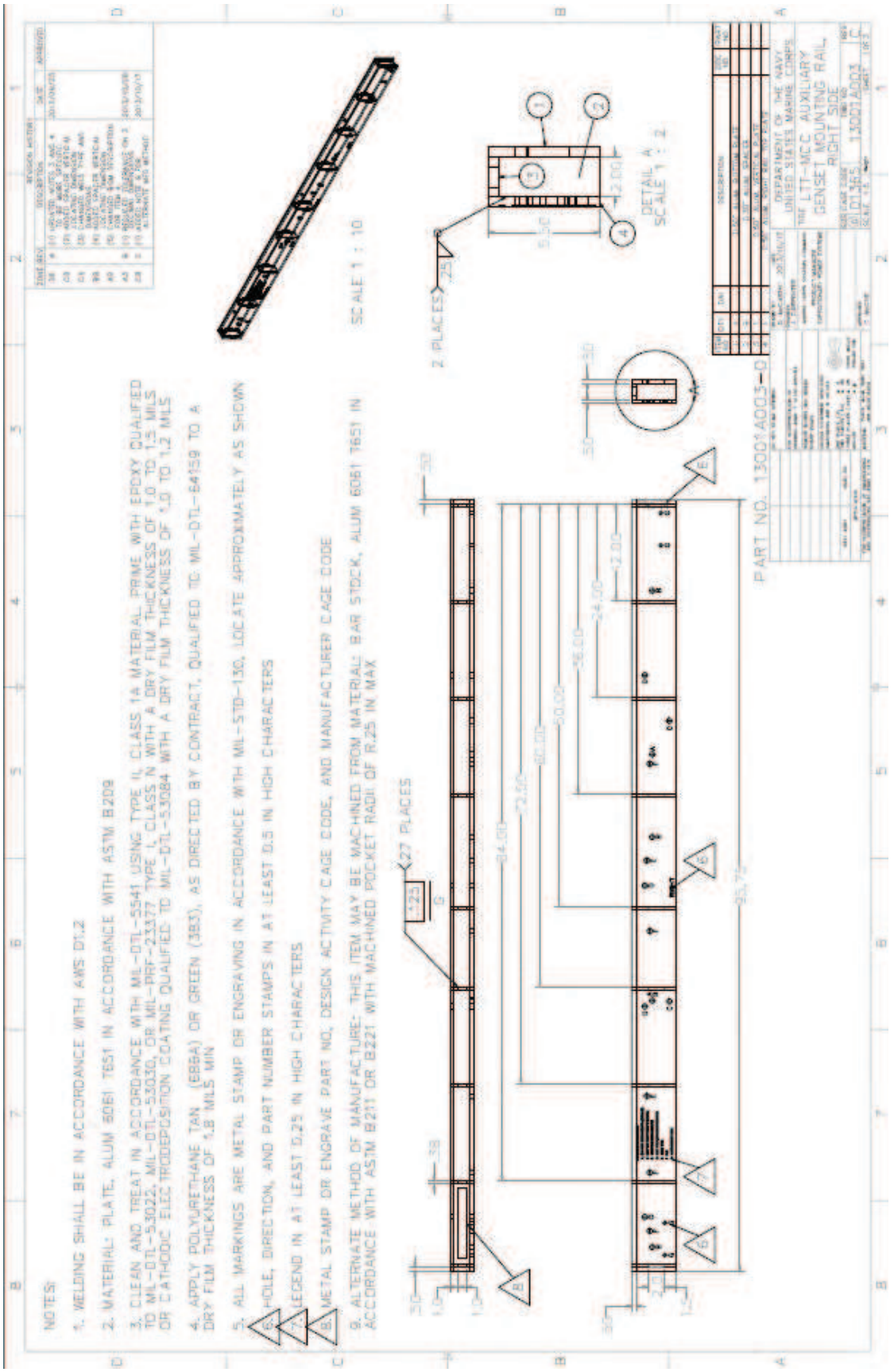
C.1.1. Scope. This Appendix provides drawings on the trailer rail system which shall be used to help plan the design of the MEHPS systems. This Appendix is a mandatory part of the specification. The information contained herein is intended for compliance.

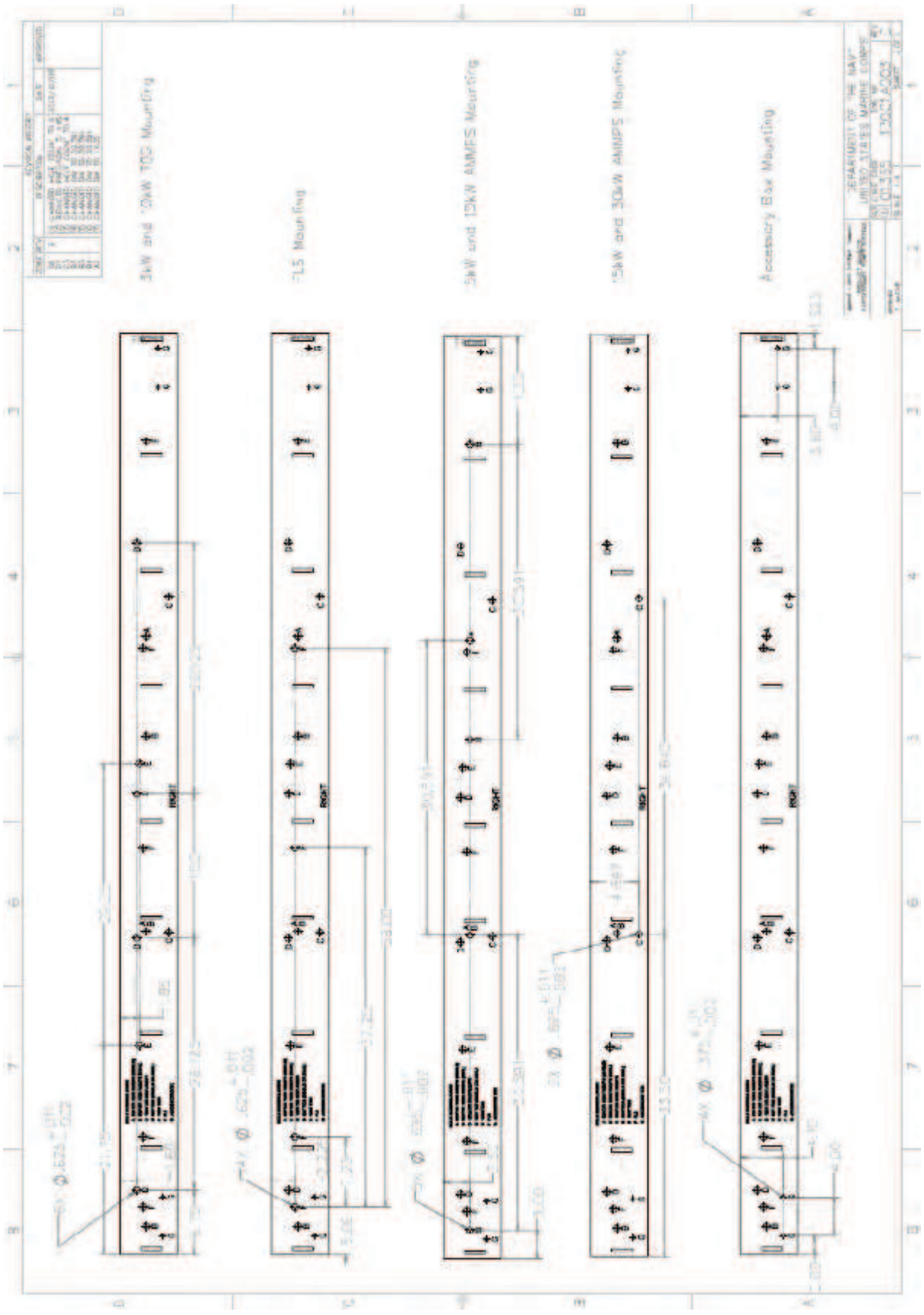
C.2. RAIL DRAWINGS

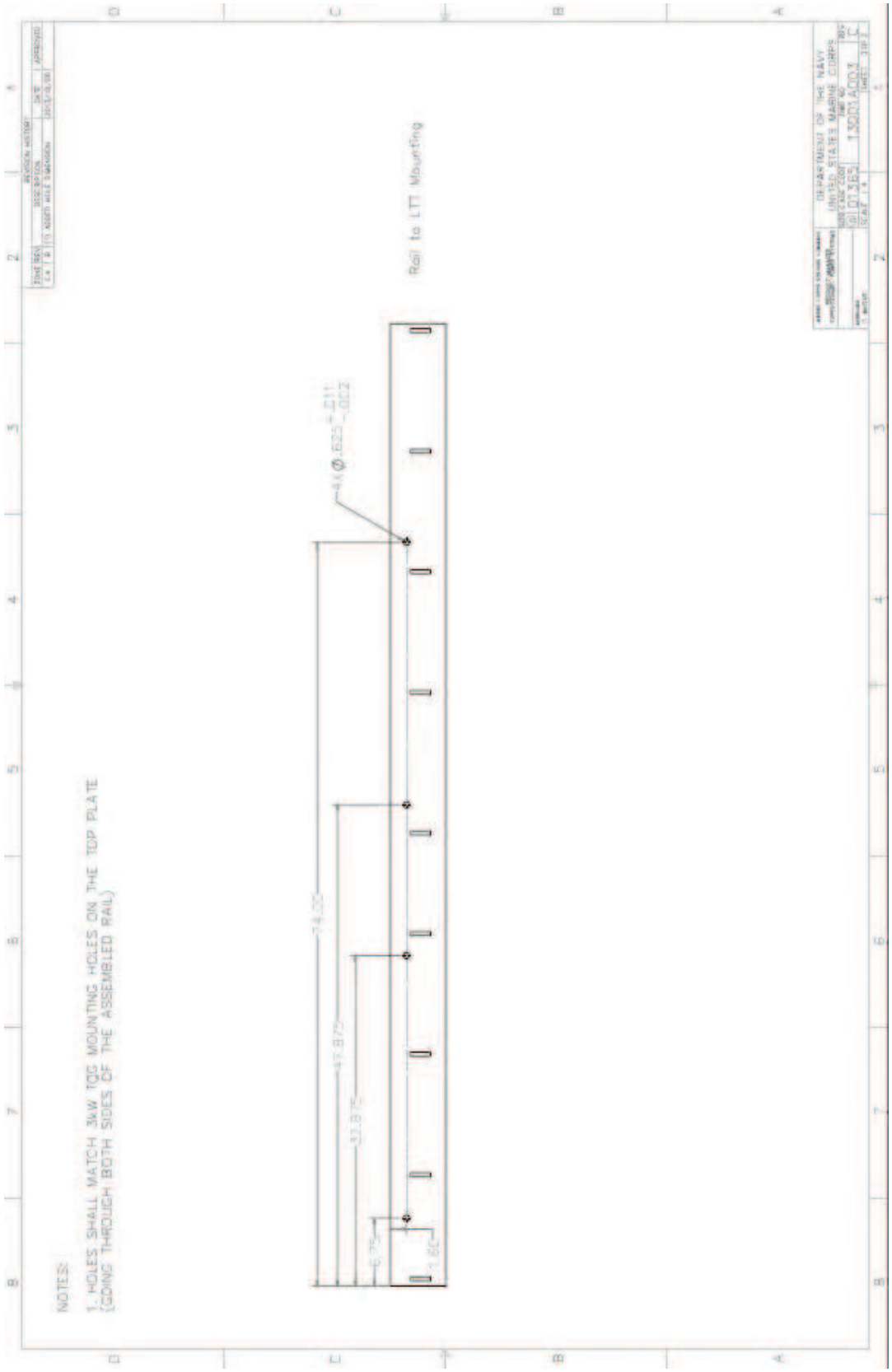
C.2.1. Left rail drawings. Figures C-1 through C-3 are the drawings for the left (roadside) rail.

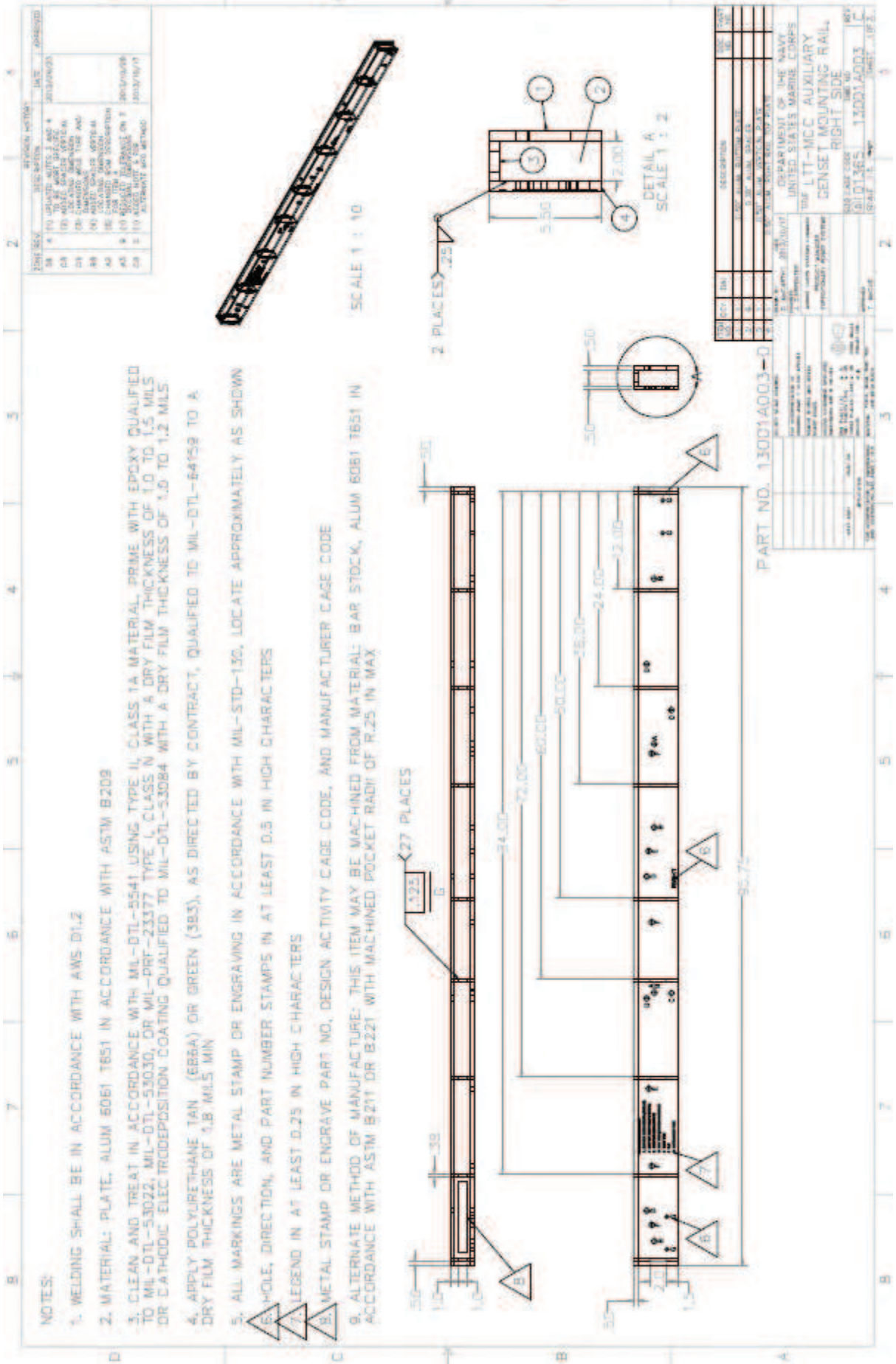
C.2.2. Right rail drawings. Figured C-4 through C-6 are the drawings for the right (curbside) rail.

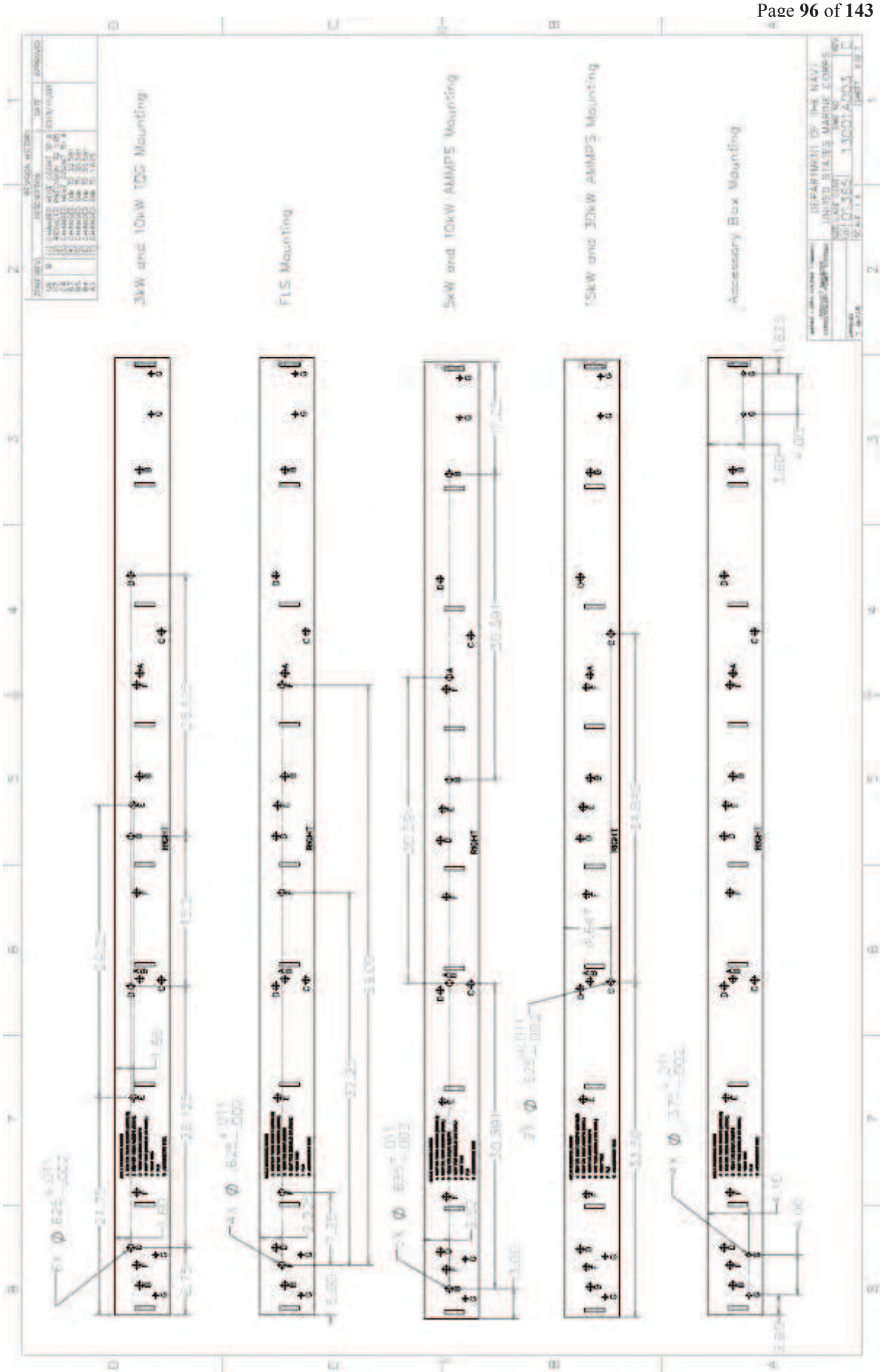
C.2.3. Exploded rail drawing. Figure C-7 is an exploded drawing of the rail showing representative LTT-MCC rails and 5 kW AMMPS skids.

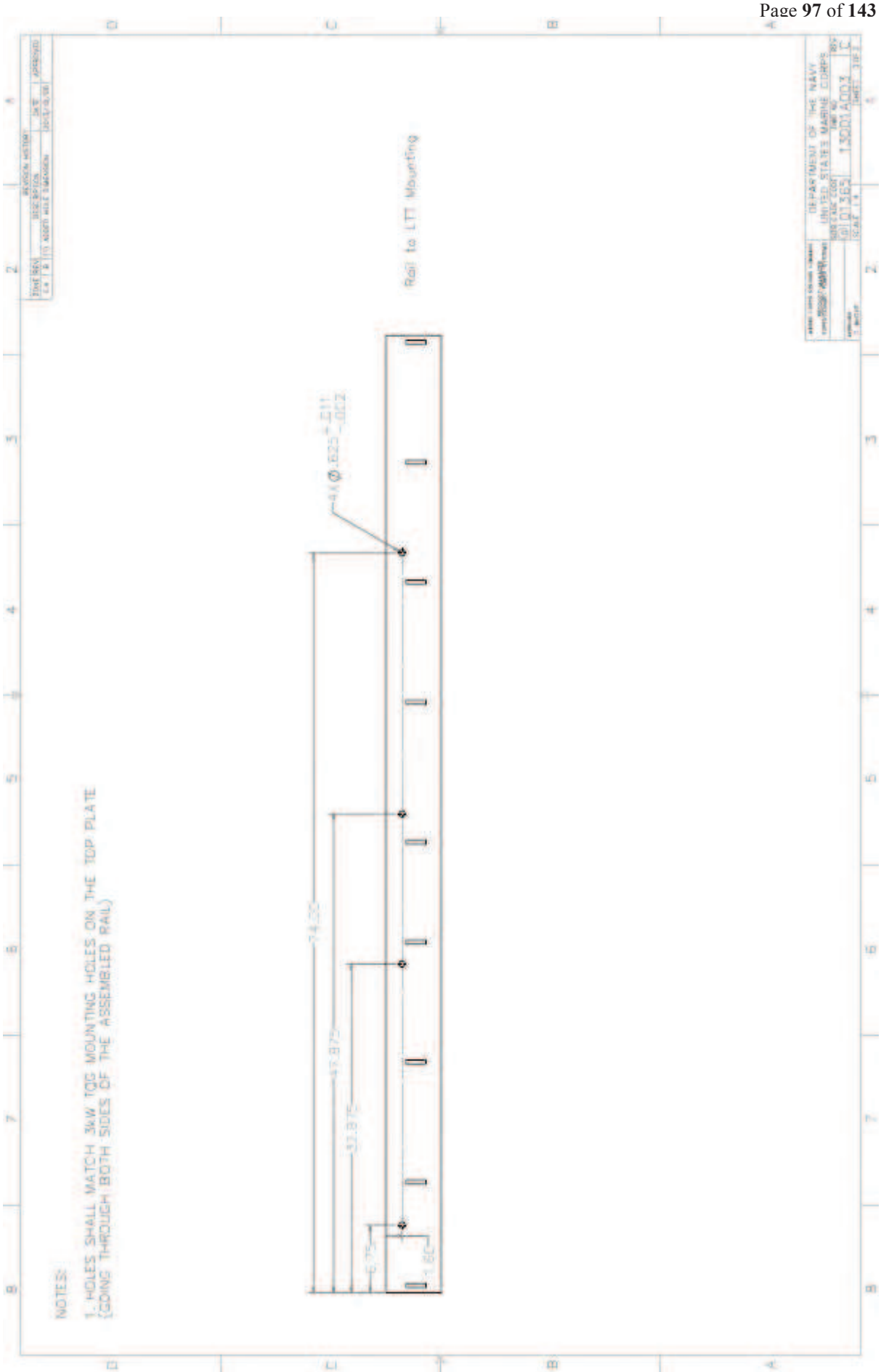

NOTES:
1. WELDING SHALL BE IN ACCORDANCE WITH AWS D1.2
2. MATERIAL: PLATE, ALUM 6061 T651 IN ACCORDANCE WITH ASTM B209
3. CLEAN AND TREAT IN ACCORDANCE WITH MIL-DTL-5541 USING TYPE II, CLASS 1A MATERIAL PRIME WITH EPOXY QUALIFIED TO MIL-DTL-53022, MIL-DTL-53030, OR MIL-PRF-23377 TYPE I, CLASS N WITH A DRY FILM THICKNESS OF 1.0 TO 1.5 MILS OR CATHODIC ELECTRODEPOSITION COATING QUALIFIED TO MIL-DTL-53084 WITH A DRY FILM THICKNESS OF 1.0 TO 1.2 MILS
4. APPLY POLYURETHANE TAN (686A) OR GREEN (383), AS DIRECTED BY CONTRACT, QUALIFIED TO MIL-DTL-64159 TO A DRY FILM THICKNESS OF 1.8 MILS MIN
5. ALL MARKINGS ARE METAL STAMP OR ENGRAVING IN ACCORDANCE WITH MIL-STD-130, LOCATE APPROXIMATELY AS SHOWN
6. HOLE, DIRECTION, AND PART NUMBER STAMPS IN AT LEAST 0.5 IN HIGH CHARACTERS
7. LEGEND IN AT LEAST 0.25 IN HIGH CHARACTERS
8. METAL STAMP OR ENGRAVE PART NO, DESIGN ACTIVITY CAGE CODE, AND MANUFACTURER CAGE CODE
9. ALTERNATE METHOD OF MANUFACTURE- THIS ITEM MAY BE MACHINED FROM MATERIAL: BAR STOCK, ALUM 6061 T651 IN ACCORDANCE WITH ASTM B211 OR B221 WITH MACHINED POCKET RADII OF R.25 IN MAX
SCALE 1 : 10
DETAIL A
SCALE 1 : 2
2 PLACES
27 PLACES
PART NO. 1300TA005-0
DEPARTMENT OF THE NAVY
UNITED STATES MARINE CORPS
TITLE LTT-MCC AUXILIARY GENSET MOUNTING RAIL, RIGHT SIDE
1300TA005

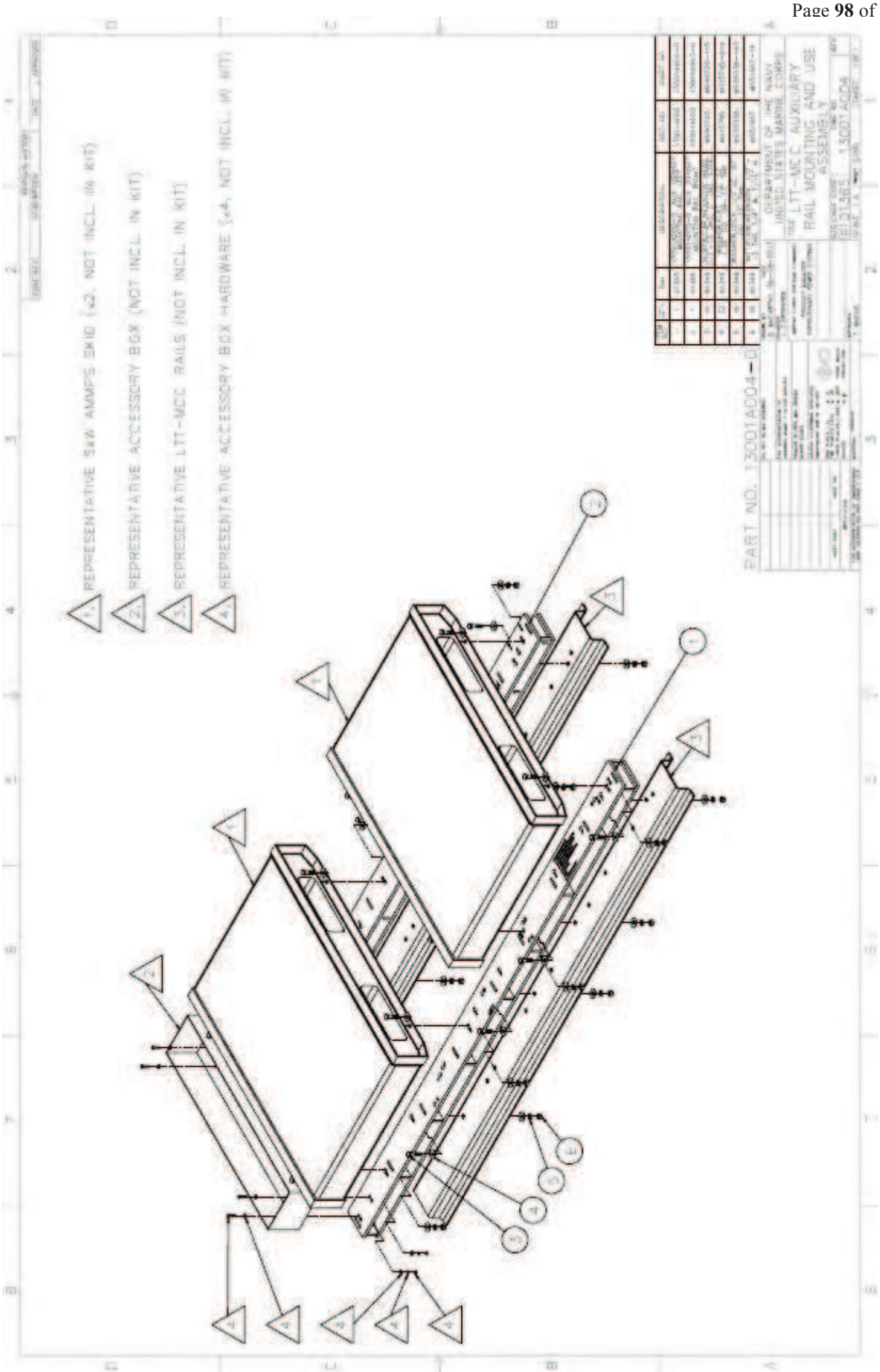

3kW and 10kW TDS Mounting
TLS Mounting
5kW and 10kW AMMPS Mounting
15kW and 30kW AMMPS Mounting
Accessory Box Mounting
RIGHT


Rail to LTT Mounting
NOTES:
1. HOLES SHALL MATCH 3kW TQG MOUNTING HOLES ON THE TOP PLATE
(GOING THROUGH BOTH SIDES OF THE ASSEMBLED RAIL)


NOTES:
1. WELDING SHALL BE IN ACCORDANCE WITH AWS D1.2
2. MATERIAL: PLATE, ALUM 6061 T651 IN ACCORDANCE WITH ASTM B209
3. CLEAN AND TREAT IN ACCORDANCE WITH MIL-DTL-5541 USING TYPE IV, CLASS 1A MATERIAL, PRIME WITH EPOXY QUALIFIED TO MIL-DTL-53022, MIL-DTL-53030, OR MIL-PRF-23377 TYPE I, CLASS N WITH A DRY FILM THICKNESS OF 1.0 TO 1.5 MILS OR CATHODIC ELECTRODEPOSITION COATING QUALIFIED TO MIL-DTL-53084 WITH A DRY FILM THICKNESS OF 1.0 TO 1.2 MILS
4. APPLY POLYURETHANE TAN (686A) OR GREEN (383), AS DIRECTED BY CONTRACT, QUALIFIED TO MIL-DTL-64159 TO A DRY FILM THICKNESS OF 1.8 MILS MIN
5. ALL MARKINGS ARE METAL STAMP OR ENGRAVING IN ACCORDANCE WITH MIL-STD-130, LOCATE APPROXIMATELY AS SHOWN
6. HOLE, DIRECTION, AND PART NUMBER STAMPS IN AT LEAST 0.5 IN HIGH CHARACTERS
7. LEGEND IN AT LEAST 0.25 IN HIGH CHARACTERS
8. METAL STAMP OR ENGRAVE PART NO, DESIGN ACTIVITY CAGE CODE, AND MANUFACTURER CAGE CODE
9. ALTERNATE METHOD OF MANUFACTURE: THIS ITEM MAY BE MACHINED FROM MATERIAL: BAR STOCK, ALUM 6061 T651 IN ACCORDANCE WITH ASTM B221 OR B221 WITH MACHINED POCKET RADII OF R.25 IN MAX
SCALE 1 : 10
DETAIL A
SCALE 1 : 2
2 PLACES
27 PLACES
PART NO. 13001A003-D
DEPARTMENT OF THE NAVY
UNITED STATES MARINE CORPS
LTT-MCC AUXILIARY
GENSET MOUNTING RAIL
RIGHT SIDE
13001A003


3kW and 10kW TDC Mounting
FLS Mounting
5kW and 10kW AMMPS Mounting
15kW and 30kW AMMPS Mounting
Accessory Box Mounting
RIGHT


Rail to LTT Mounting
4X Ø.625 +.011 -.022
14.25
9.875
5.375
1.625
6.75
NOTES:
1. HOLES SHALL MATCH 3kW TOG MOUNTING HOLES ON THE TOP PLATE (GOING THROUGH BOTH SIDES OF THE ASSEMBLED RAIL)
DEPARTMENT OF THE NAVY
UNITED STATES MARINE CORPS
13001A003
C


1 REPRESENTATIVE 5kW AMMPS SKID (x2, NOT INCL IN KIT)
2 REPRESENTATIVE ACCESSORY BOX (NOT INCL IN KIT)
3 REPRESENTATIVE LTT-MCC RAILS (NOT INCL IN KIT)
4 REPRESENTATIVE ACCESSORY BOX HARDWARE (x4, NOT INCL IN KIT)
PART NO. 13001A004-0
DEPARTMENT OF THE NAVY
UNITED STATES MARINE CORPS
LTT-MCC AUXILIARY
RAIL MOUNTING AND USE
ASSEMBLY
13001A004

PRF EPS-0803/1
21 August 2015

PERFORMANCE SPECIFICATION SHEET
MOBILE ELECTRIC HYBRID POWER SOURCES – LIGHT (MEHPS-L)

This specification is approved for use by the Marine Corps Systems Command and is available for use by all Departments and Agencies of the Department of Defense.
The requirements for the product described herein shall consist of this specification sheet and the MEHPS general specification, PRF EPS-0803.

1. SCOPE

1.1. Scope. This specification sheet covers the specific requirements for the Mobile Electric Hybrid Power Sources – Light (MEHPS-L) system.

1.2. Classification. The MEHPS-L shall be rated at 5 kilowatts.

2. APPLICABLE DOCUMENTS

2.1. General. All documents for the MEHPS Light system are included in the general MEHPS specification.

3. REQUIREMENTS

3.1. Key performance requirements.

3.1.1. Fuel consumption.

3.1.1.1. Fuel consumption load profile. Fuel consumption shall be no more than 3.0 (T) / 2.1 (O) gallons per day average when the powering load profile in Table III.

TABLE III. MEHPS-L Load Profile

Time (Hours)	Power Demand (kW)
0-6	1.3
6-13	1.35
13-16	1.3
16-24	1.35

3.1.1.2. Fuel consumption at no load. Fuel consumption when the system is operating but no load is present shall be no more than 2.0 (T) / 0 (O) gallons per day average.

3.1.1.3. Fuel consumption at low loads. Fuel consumption for any load profile that averages 1.3 kW shall be no more than 3.0 (T) / 2.1 (O) gallons per day average. Fuel consumption for loads between 0 kW and 1.3 kW shall not exceed the linear trend of the requirements at 0 kW and 1.3 kW.

3.1.1.4. Fuel consumption at middle loads. Fuel consumption for any load profile that averages 4 kW shall be no more than 9.4 (T) / 7.9 (O) gallons per day average. Fuel consumption for loads between 1.3 kW and 4 kW shall not exceed the linear trend of the requirements at 1.3 kW and 4 kW.

3.1.1.5. Fuel consumption at high loads. Fuel consumption for any load profile that averages 5 kW shall be no greater than 11.4 (T) / 10.3 (O) gallons per day average. Fuel consumption for loads between 4 kW and 5 kW shall not exceed the linear trend of the requirements at 4 kW and 5 kW.

3.1.1.6. Fuel consumption with no solar. When no solar input is present, system fuel consumption shall be no more than 2.5 gallons per day when the system is operating with no load present. Fuel consumption shall not exceed 3.8 gallons per day for loads averaging 1.3 kW. Fuel consumption for loads between 0 kW and 1.3 kW shall not exceed the linear trend of the requirements at 0 kW and 1.3 kW. Fuel consumption shall not exceed 10.5 gallons per day for loads averaging 4 kW. Fuel consumption for loads between 1.3 kW and 4 kW shall not exceed the linear trend of the requirements at 1.3 kW and 4 kW. Fuel consumption shall not exceed stand-alone generator fuel consumption by more than 5% for loads over 4 kW. (T=O)

3.1.2. AC power quality. The MEHPS-L shall provide Class 2B utility power IAW MIL-STD-1332B. (T=O)

3.1.2.1. TQG AC power quality. When connected to the 3 kW TQG, the system shall provide Class 2C utility power IAW MIL-STD-1332B. (T=O)

3.1.3. Reliability. The MEHPS-L shall operate 500 hours between Essential Function Failure (see 6.1.3 of the general specification). The hours are based on system operational hours. (T=O)

3.2. Physical.

3.2.1. Component weight. Individual components shall not exceed 147 lbs. (T) / 84 lbs. (O).

3.2.2. System weight. The system, including the generator, but not including fuel, shall not exceed 1,625 lbs. (T) / 1,400 lbs. (O).

3.2.3. System Volume. The system, including the generator, but not including fuel, shall not exceed a total volume of 80 cubic feet (cuft) (T) / 50 cuft (O).

3.3. Electrical.

3.3.1. System generator. The system shall be able to use a 5kW AMMPS generator as the integrated system generator (T). The system shall also be able to use a 3 kW Tactical Quiet Generator in place of the 5 kW AMMPS generator as the integrated system generator (O).

3.3.2. AC power rating. The system shall provide 5 kW of three phase AC power continuously when using the 5 kW AMMPS generator. (T=O) If connected to the 3 kW TQG, the system shall provide 3 kW of single phase AC power continuously.

3.3.2.1. Output DC power level. The system shall provide 2 kW of DC output power. (O)

3.3.3. Output AC connector. The system shall have one (1) 3-phase, 5 wire, 30 Amp IEC 60309 pin and sleeve receptacle for AC power output. (T=O)

3.3.4. Input AC power level. The system shall accept full rated power from an integrated 5 kW generator. (T=O)

3.3.5. Input solar power level. The system shall accept power from a solar array rated at 2 kW (T) / 3 kW (O) or greater.

3.3.6. Input DC power level. The system shall accept 2 kW of DC power. (O)

3.3.7. Silent watch. The system shall provide 4 kWh of energy over 3 hours (T) / 10.8 kWh of energy over 8 hours (O) of silent watch IAW 3.6.8, 3.6.9, and 3.8.10 of the general specification (PRF EPS-0803).

3.3.8. Silent watch maximum power. During silent watch (see 3.6.8, 3.6.9, and 3.8.10 of the general specification (PRF EPS-0803)), the system shall be able to provide power up to the system's maximum rating of 5 kW. (T=O)

3.4. Transportability

3.4.1. Loose Cargo Bounce. All system components, excluding the generator, shall not incur degradation of performance after being transported in the bed of a military vehicle without being secured. (T=O) The system as a whole will not be subject to this requirement; however, all components shall individually survive loose cargo bounce in their transportation configuration.

4. NOTES

4.1. Sample power profiles. Sample MEHPS-L power profiles are shown in Figures 3 to 7.

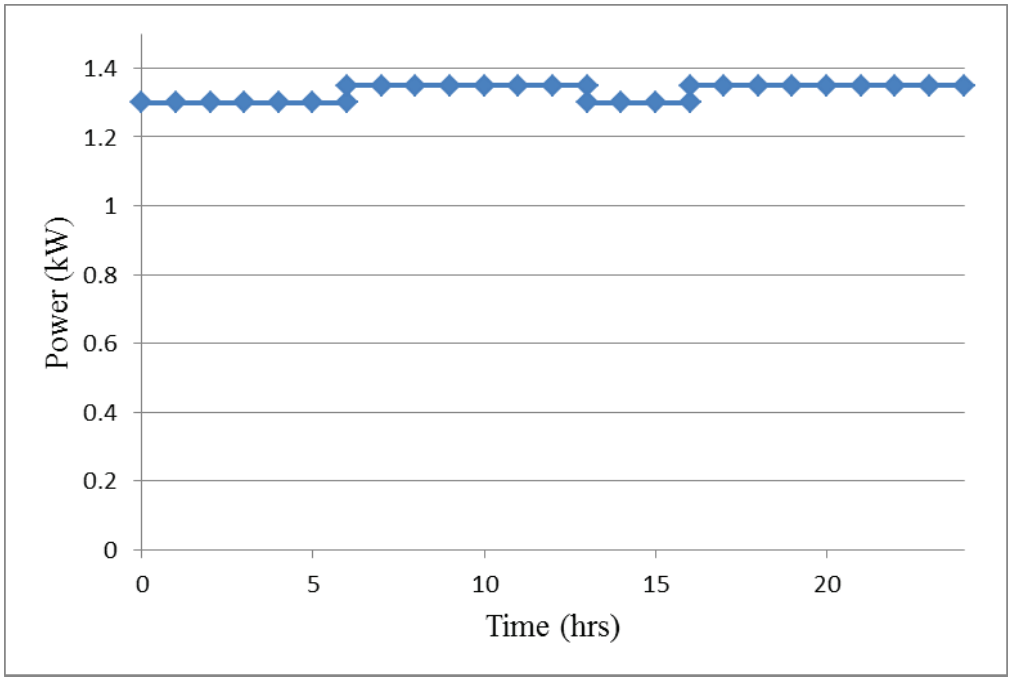


FIGURE 3. MEHPS -L power profile 1

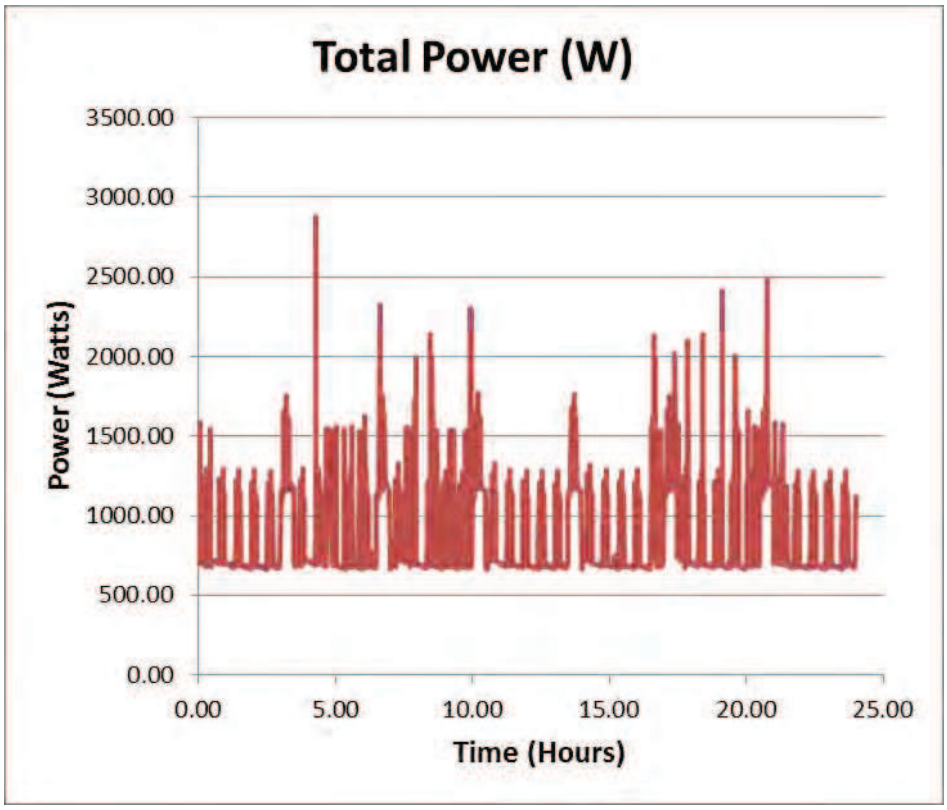


FIGURE 4. MEHPS-L power profile 2

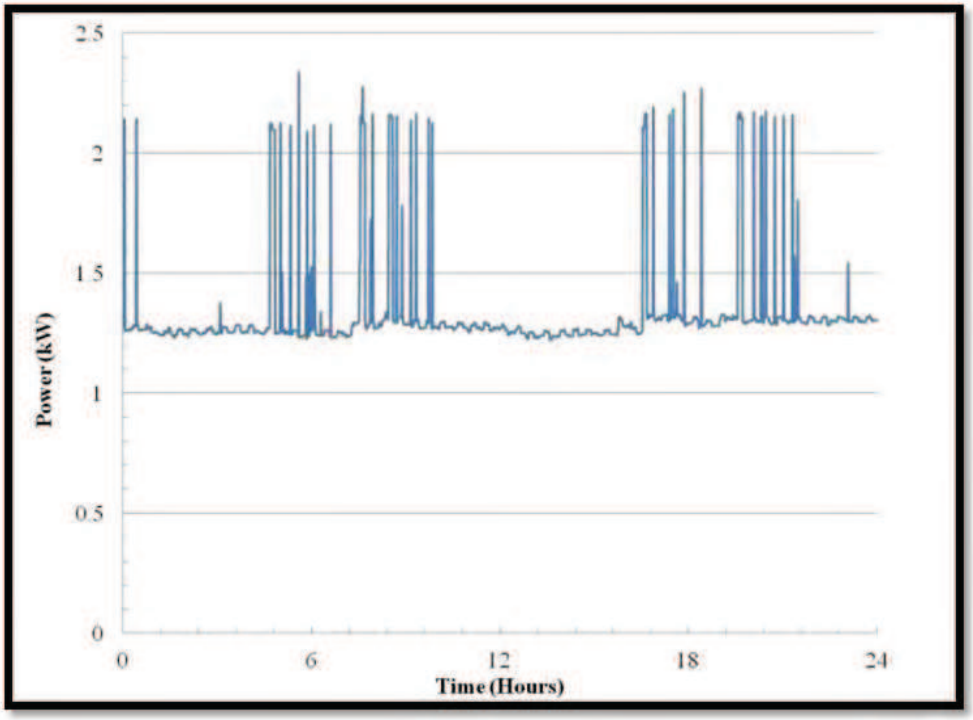


FIGURE 5. MEHPS-L power profile 3

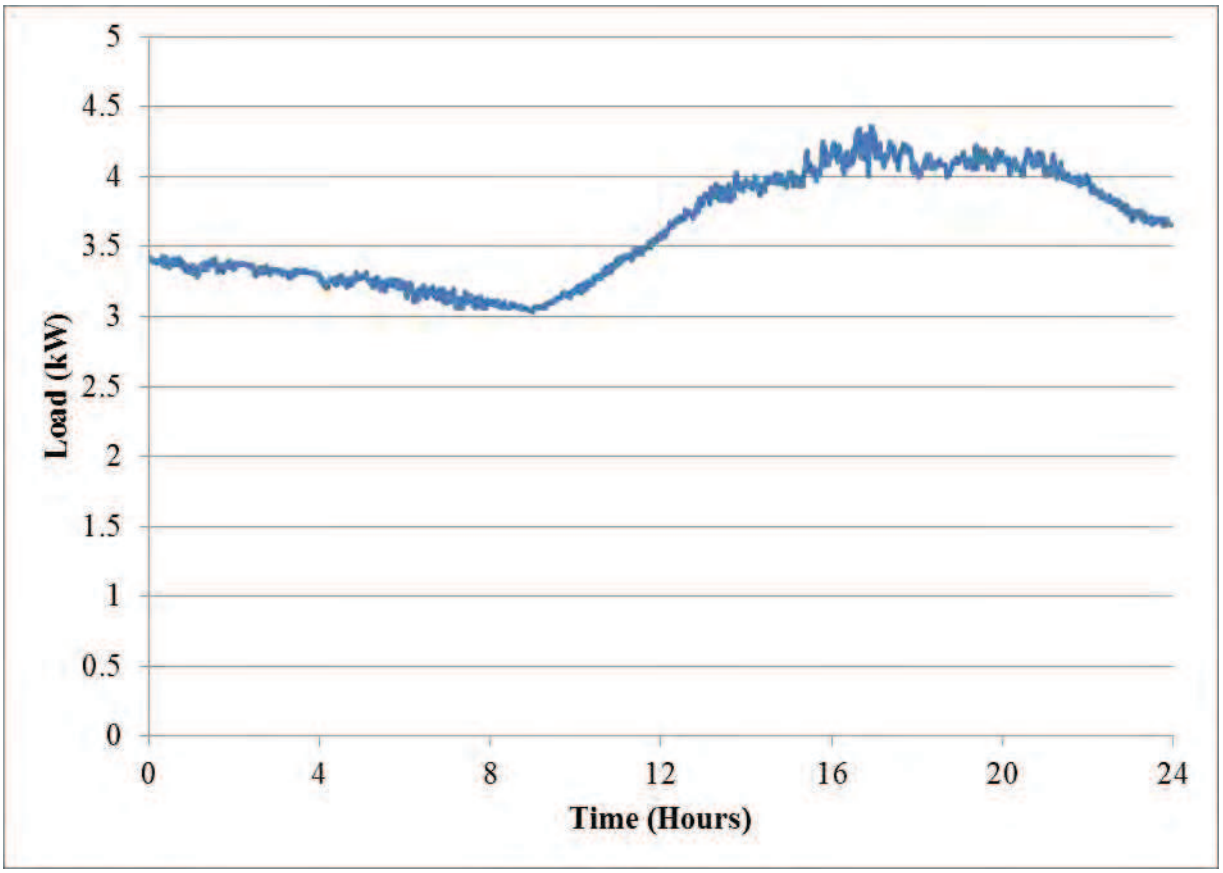


FIGURE 6. MEHPS-L power profile 4

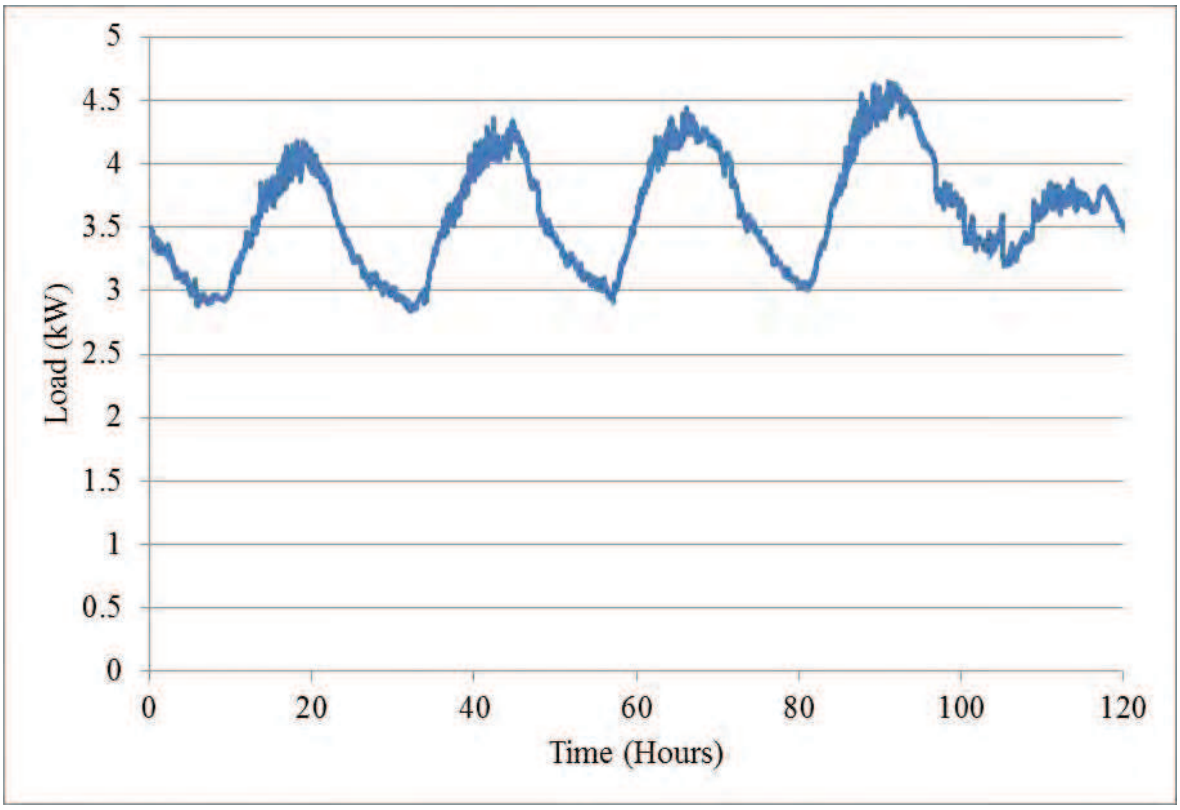


FIGURE 7. MEHPS-L power profile 5

PRF EPS-0803/2
21 August 2015

PERFORMANCE SPECIFICATION SHEET
MOBILE ELECTRIC HYBRID POWER SOURCES – MEDIUM (MEHPS-M)

This specification is approved for use by the Marine Corps Systems Command and is available for use by all Departments and Agencies of the Department of Defense.

The requirements for the product described herein shall consist of this specification sheet and general MEHPS specification, PRF EPS-0803.

5. SCOPE

5.1. Scope. This specification sheet covers the specific requirements for the Mobile Electric Hybrid Power Sources – Medium (MEHPS-M) system.

5.2. Classification. The MEHPS-M shall interface electrically with its energy collector, energy storage, will accept inputs from power sources, and provide outputs between 10 and 15 kilowatts.

6. APPLICABLE DOCUMENTS

6.1. General. The documents listed in this section are specified in section 3 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in section 3 of this specification, whether or not they are listed.

6.2. Government documents.

6.2.1. Specifications, standards, and handbooks. The following specifications, standards, and handbooks of the exact revision listed below form a part of this specification to the extent specified herein.

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-209K	-	Lifting and Tie-Down Provisions
MIL-STD-913A	-	Requirements for the Certification of Sling Loaded Military Equipment for External Transportation by Department Of Defense Helicopters
MIL-STD-1366E	-	Transportability Criteria

7. REQUIREMENTS

7.1. Key performance requirements.

7.1.1. Fuel consumption.

7.1.1.1. Fuel consumption load profile. Fuel consumption shall be no more than 7.2 (T) / 5.8 (O) gallons per day average when powering the load profile in Table IV.

TABLE IV. MEHPS-M Load Profile

Time (hours)	Load Demand (kW)

0-1	2.5
1-4	3.3
4-8	4.2
8-9	4.5
9-11	5
11-13	5.8
13-15	6.7
15-16	7.9
16-18	6.7
18-19	5.8
19-22	5
22-23	4.2
23-24	3.3
24-29	.5
29-34	1
34-37	2
37-38	3
38-39	3.5
39-40	3
40-44	2
44-48	1
48-49	8.2
49-51	8.9
51-52	9.7
52-53	8.9
53-55	8.2
55-56	7.8
56-57	6.7
57-59	5.8
59-60	5
60-62	4.2
62-64	3.7
64-66	4.2
66-69	5
69-71	5.8
71-72	6.8
72-77	.5
77-82	1
82-85	2
85-86	3
86-87	3.5
87-88	3
88-92	2

92-96	1

7.1.1.2. Fuel consumption at no load. Fuel consumption when the system is operating but no load is present shall be at least 25% less than the stand-alone generator fuel consumption (T) / 0 gallons per day average (O).

7.1.1.3. Fuel consumption at low loads. Fuel consumption shall be at least 25% (T) / 40% (O) less than the stand-alone generator fuel consumption for any load profile that averages 3.5 kW. Fuel consumption for loads between 0 kW and 3.5 kW shall not exceed the linear trend of the requirements at 0 kW and 3.5 kW.

7.1.1.4. Fuel consumption at middle loads. Fuel consumption for any load profile that averages 8 kW shall be at least 10% (T) / 25% (O) less than the stand alone generator fuel consumption. Fuel consumption for loads between 3.5 kW and 8 kW shall not exceed the linear trend of the requirements at 3.5 kW and 8 kW.

7.1.1.5. Fuel consumption at high loads. Fuel consumption for any load profile that averages 10 kW shall be no greater than (T) / at least 10% less than (O) the stand alone generator fuel consumption. Fuel consumption for loads between 8 kW and 10 kW shall not exceed the linear trend of the requirements at 8 kW and 10 kW.

7.1.1.6. Fuel consumption with no solar. When no solar input is present, system fuel consumption shall be at least 25% less than the generator alone for any loads averaging less than 3.5 kW. Fuel consumption shall not exceed stand-alone generator fuel consumption for loads averaging 8 kW. Fuel consumption for loads between 3.5 kW and 8 kW shall not exceed the linear trend of the requirements at 3.5 kW and 8 kW. Fuel consumption shall not exceed stand-alone generator fuel consumption by more than 3% for loads over 8 kW. (T=O)

7.1.2. AC power quality. The MEHPS-M shall meet Class 2B utility requirements in MIL-STD1332B. (T=O)

7.1.3. Reliability. The MEHPS-M shall operate 750 (T) / 1250 (O) hours between Essential Function Failure (see 6.1.3 of the general specification). The hours are based on system operational hours.

7.2. Physical.

7.2.1. Component weight. Individual components shall not exceed 210 lbs. (T) / 147 lbs. (O).

7.2.1.1. Component weight, over 3 foot lift. Components that need to be lifted between 3 and 5 feet to be mounted on the trailer shall not exceed 185 lbs. (T) / 129.5 lbs. (O).

7.2.1.2. Component weight, over 5 foot lift. Components that need to be lifted over 5 feet to be mounted on the trailer shall not exceed 155 lbs. (T) / 108.5 lbs. (O).

7.2.2. System weight. When mounted on the LTT-MCC, the total weight including the trailer, the trailer BII, the generator fully fueled, and all system components, but not including additional fuel, shall not exceed 4200lbs. (T=O)

7.2.3. System volume. When mounted on the LTT-MCC in the transport configuration, all components shall be contained within the footprint of the trailer. (T=O)

7.2.4. Deployment configuration. The system shall be fully operational while off the trailer with all components, excluding the generator, are on the ground. (T) The system shall be fully operational while all components, excluding the solar panels and cable box, remain on the trailer (T). The system shall be fully set up ready for operation, except solar panels, while in transport on the trailer (O).

7.3. Electrical.

7.3.1. System generator. The system shall use the 10 kW Advanced Medium Mobile Power Sources generator (MEP-1040) as the integrated system generator (T). The system shall also be able to use the 15 kW AMMPS generator in place of the 10 kW AMMPS generator (O).

7.3.2. AC power rating. The system shall provide 10 kW (T) / 15 kW (O) of 3-phase AC power continuously.

7.3.2.1. Output DC power level. The system shall provide 2 kW of DC output power. (O)

7.3.3. Output AC connector. The system shall have one (T) / two (O) 3-phase, 5-wire, 30 Amp IEC 60309 pin and sleeve receptacle for output AC power.

7.3.4. Input AC power level. The system shall accept full rated power from an integrated 10 kW (T) / 15 kW (O) generator.

7.3.5. Input solar power level. The system shall accept power from a solar array rated at 2 kW (T) / greater than 3kW (O).

7.3.6. Input DC power level. The system shall accept 2 kW of DC power. (O)

7.3.7. Silent watch. The system shall provide 10 kWh of energy over 3 hours (T) / 28 kWh of energy over 8 hours (O) of silent watch IAW 3.6.8, 3.6.9, and 3.8.10 of the general specification (PRF EPS-0803).

7.3.8. Silent watch maximum power. During silent watch (see 3.6.8, 3.6.9, and 3.8.10 of the general specification (PRF EPS-0803)), the system shall be able to provide power up to the system's maximum rating of 10 kW (T) / 15 kW (O).

7.4. Transportability. The MEHPS-M shall have the capability of being transported worldwide by rail, marine, highway, and air modes to include external helicopter lift. Guidance on transportability criteria is defined in MIL-STD-1366. Disassembly from trailer is not permitted.

7.4.1. System trailer. The MEHPS-M shall be mounted to an M1102 Light Tactical Trailer – Marine Corps Chassis (LTT-MCC). (T=O)

7.4.1.1. LTT-MCC components. The Basic Issue Items (BII) provided on the LTT-MCC (such as accessory box, rear landing legs, etc.) shall not be removed and shall be provided on the MCC-LTT. (T=O)

7.4.1.2. LTT-MCC center of gravity. When the system is mounted on the LTT-MCC in the transport configuration, the center of gravity of the trailer shall be no higher than 46.0 inches

above ground level, shall be between 4.7 and 9.4 inches in front of the axle centerline, and shall be within 1 inch of the longitudinal centerline of the trailer. (T=O)

7.4.1.3. Trailer mounting. The system shall use the Marine Corps standard AMMPS rails for mounting to the trailer. (T=O) Rail drawings will be provided post contract award and are located in Appendix C.

7.4.1.4. Trailer mounting time. The system shall be designed to allow for quick mounting to the MCC-LTT. (T=O) The time required to place the system in transportation mode on the MCC-LTT shall be included in overall system tear down time requirement.

7.4.1.5. Trailer mounting tools. No special tools (T) / no tools (O) shall be required to mount the system to the MCC-LTT.

7.4.1.6. Trailer modifications. The trailer shall not be modified other than to provide for system mounting provisions (T). The trailer shall not be modified (O). Additions of AMMPS rails are not included in this requirement.

7.4.1.7. Generator configuration. The space on top on the generator shall not be used to store or transport other system components. (T=O)

7.4.1.8. Sling load configuration. When mounted on the trailer the system shall be sling load capable with trailer and not interfere with sling legs. (T=O)

7.4.2. Rail impact. The MEHPS-M shall be rail transportable in Continental United States (CONUS) and NATO countries without restrictions. (T=O) Reference MIL-STD-1366. The MEHPS-M shall be capable of withstanding shock loads resulting from rail impact testing without failure, damage, or permanent deformation. When loaded on a 51-inch high rail car, the MEHPS-M shall meet the dimensional requirements of the Association of American Railroads (AAR) outline diagram for single loads, without end overhang, on open-top cars. The MEHPS-M shall meet the dimensional requirements of Gabarit International de Chargement (GIC) equipment gauge diagram. These diagrams apply to standard gauge rail lines in the CONUS and NATO countries. The MEHPS-M shall be capable of withstanding shock loads resulting from rail impact testing without failure, damage or permanent deformation.

7.4.3. Marine transport. The MEHPS-M shall be capable of transport on US Naval craft to include SSC, LCAC, LCU, JHSV, INLS, LHA-1, LHD-1,LSD-41, LSD-49, LPD-17, Lift-On/Lift-Off (LOLO), Roll-On/Roll-Off (RORO), break bulk (general cargo), and barge carrying (LASH and SEABEE) ships, as well as Army watercraft. (T=O)

7.4.4. Highway transport. The MEHPS-M shall be highway transportable by the M870 series/semi-trailer, which has a deck height of 42”, while meeting worldwide transportation requirement. (T=O)

7.4.5. Air transport. The MEHPS-M shall be capable of being transported by C-130, C-17 and C-5 aircraft in accordance with MIL-STD-1791A design criteria. (T=O)

7.4.6. External helicopter transport. The MEHPS-M shall be capable of being transported externally by CH-53 helicopter in accordance with MIL-STD-913 and MIL-STD-209. The use

of spreader bars is not permitted. Approval for external air lift by helicopter shall be provided by the U.S. Army Natick Soldier Center via MCSC Transportability. (T=O)

7.4.7. Secured cargo transport. The system components, excluding the generator, shall incur neither damage nor degradation of performance when transported securely in the bed of a military vehicle. (T=O)

8. NOTES

8.1. Sample power profiles. Sample MEHPS-M power profiles are shown in Figures 8 to 10.

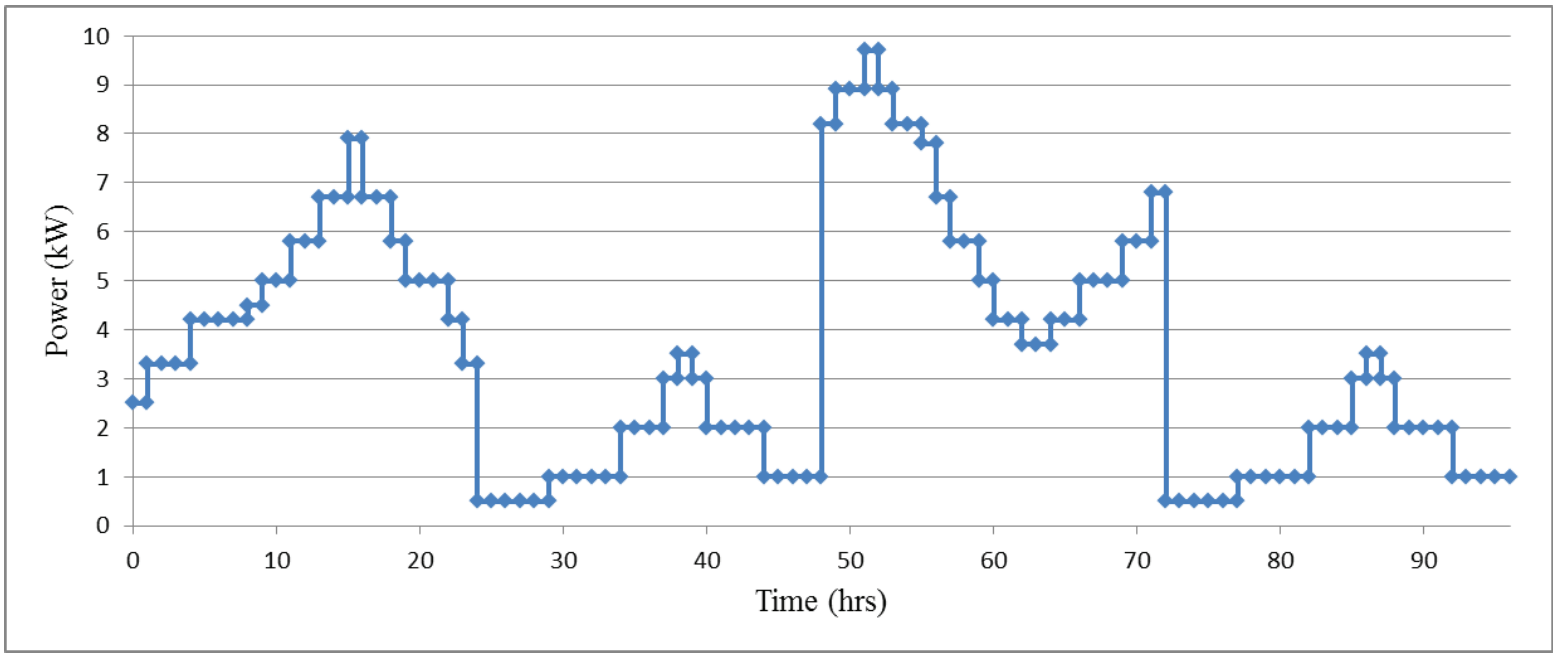


FIGURE 8. MEHPS-M power profile 1

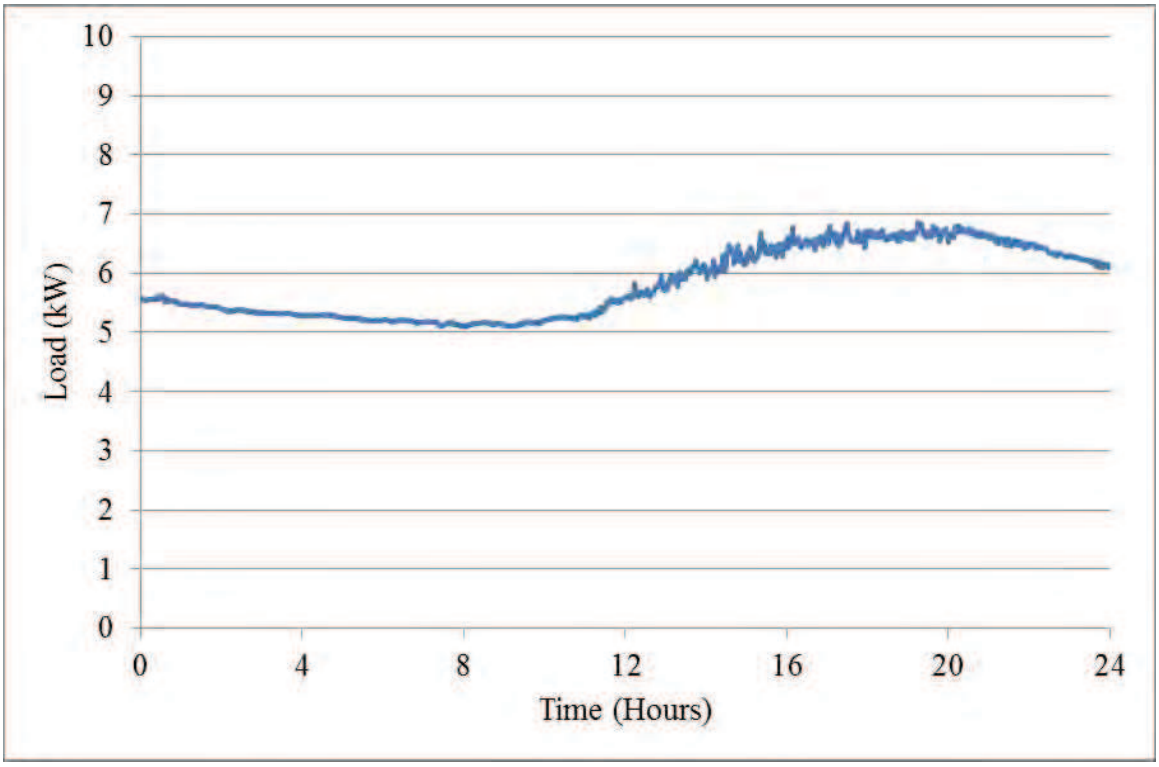


FIGURE 6. MEHPS-M power profile 2

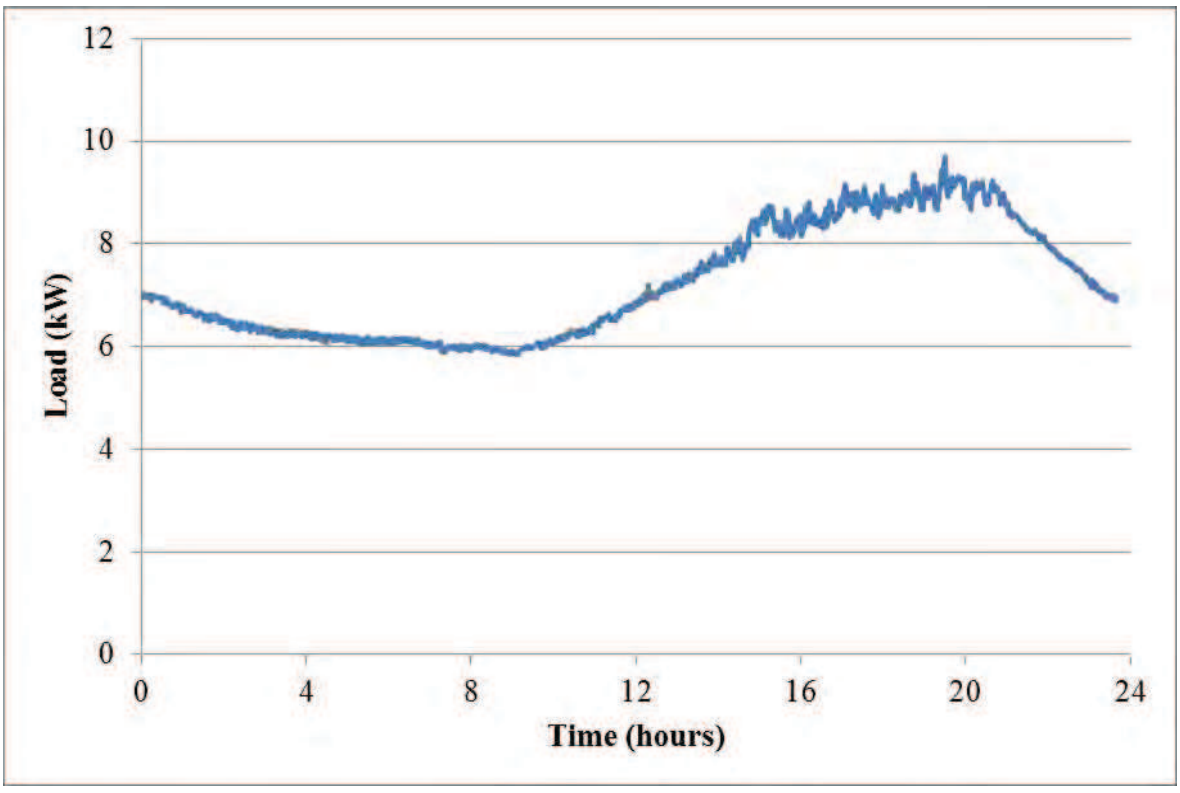


FIGURE 7. MEHPS-M power profile 3

ATTACHMENT 3-PAST PERFORMANCE

Past Performance Questionnaire

Your assistance is requested by the Marine Corps Systems Command (2.5) to assist with establishing the performance history for the contractor named below. Please complete this questionnaire and e- mail it to the following:

Email Address: Ebony.Guest@usmc.mil
MARCORSYSCOM
MOBILE ELECTRIC HYBRID POWER SOURCES (MEHPS)
Attn: Ebony M Guest
2200 Lester Street
Quantico, VA 22134-5050
Ph. 703-432-3724

When Complete, the information on this form is Source Selection Sensitive (41 USC 423); SAFEGUARD.
COMMENTS MUST BE PROVIDED FOR THIS DATA TO BE UTILIZED

Contractor Name & Address:	Contract No.:
	Contract Award Date:
	Completion Date:
	Contract Value:
	Type of Contract:
Evaluator Name/Title/Phone:	
Description of Contract Requirements:	

Evaluation:

A1. Quality of Products, Documents, Presentations, and Related Deliverables.

☐ **N/A** *Comments:*
☐ **OUTSTANDING**
☐ **EXCEEDS EXPECTATIONS**
☐ **MEETS EXPECTATIONS**
☐ **UNSATISFACTORY**

B1. Effectiveness of Program Management and Control.

☐ **N/A** *Comments:*
☐ **OUTSTANDING**
☐ **EXCEEDS EXPECTATIONS**
☐ **MEETS EXPECTATIONS**
☐ **UNSATISFACTORY**

B2. Timeliness of Performance for Services and Product Deliverables.

☐ **N/A** *Comments:*
☐ **OUTSTANDING**
☐ **EXCEEDS EXPECTATIONS**
☐ **MEETS EXPECTATIONS**
☐ **UNSATISFACTORY**

B3. Subcontractor Management/Parts and Support Base.

How well has this company fulfilled its small business subcontracting commitments, to help fill the requirements in DFARS 215.305?

☐ **N/A** *Comments:*
☐ **OUTSTANDING**
☐ **EXCEEDS EXPECTATIONS**
☐ **MEETS EXPECTATIONS**
☐ **UNSATISFACTORY**

B4. Quality of Engineering and Technical Products

☐ **N/A** *Comments:*
☐ **OUTSTANDING**
☐ **EXCEEDS EXPECTATIONS**
☐ **MEETS EXPECTATIONS**
☐ **UNSATISFACTORY**

C1. Customer Satisfaction - Business/Contracting Relations.

☐ **N/A** *Comments:*
☐ **OUTSTANDING**
☐ **EXCEEDS EXPECTATIONS**
☐ **MEETS EXPECTATIONS**
☐ **UNSATISFACTORY**

C2. Customer Satisfaction – Performance of Final Technical Products

☐ **N/A** *Comments:*
☐ **OUTSTANDING**
☐ **EXCEEDS EXPECTATIONS**
☐ **MEETS EXPECTATIONS**
☐ **UNSATISFACTORY**

C3. Customer Satisfaction - Interaction with Govt Staff and Flexibility.

☐ **N/A** *Comments:*
☐ **OUTSTANDING**
☐ **EXCEEDS EXPECTATIONS**

☐ **MEETS EXPECTATIONS**
☐ **UNSATISFACTORY**

D1. Overall Satisfaction.
☐ **N/A** *Comments:*
☐ **OUTSTANDING**
☐ **EXCEEDS EXPECTATIONS**
☐ **MEETS EXPECTATIONS**
☐ **UNSATISFACTORY**

The above information provided has been previously shared with the Contractor -

☐ **YES** ☐ **NO**

D2. What do you believe are the company's strengths?

D3. What do you believe are the company's weaknesses?

The responses to D2 and D3 (above) have been previously shared with the Contractor -

☐ **YES** ☐ **NO**

Other Comments.

Section K - Representations, Certifications and Other Statements of Offerors

CLAUSES INCORPORATED BY FULL TEXT

52.204-8 ANNUAL REPRESENTATIONS AND CERTIFICATIONS (DEC 2014)

(a)(1) The North American Industry Classification System (NAICS) code for this acquisition is [insert NAICS code]. 335311

(2) The small business size standard is [insert size standard].

(3) The small business size standard for a concern which submits an offer in its own name, other than on a construction or service contract, but which proposes to furnish a product which it did not itself manufacture, is 500 employees.

(b)(1) If the provision at 52.204-7, System for Award Management, is included in this solicitation, paragraph (d) of this provision applies.

(2) If the provision at 52.204-7 is not included in this solicitation, and the offeror is currently registered in System for Award Management (SAM), and has completed the Representations and Certifications section of SAM electronically, the offeror may choose to use paragraph (d) of this provision instead of completing the corresponding individual representations and certifications in the solicitation. The offeror shall indicate which option applies by checking one of the following boxes:

(X) Paragraph (d) applies.

( ) Paragraph (d) does not apply and the offeror has completed the individual representations and certifications in the solicitation.

(c) (1) The following representations or certifications in SAM are applicable to this solicitation as indicated:

(i) 52.203-2, Certificate of Independent Price Determination. This provision applies to solicitations when a firm-fixed-price contract or fixed-price contract with economic price adjustment is contemplated, unless—

(A) The acquisition is to be made under the simplified acquisition procedures in Part 13;

(B) The solicitation is a request for technical proposals under two-step sealed bidding procedures; or

(C) The solicitation is for utility services for which rates are set by law or regulation.

(ii) 52.203-11, Certification and Disclosure Regarding Payments to Influence Certain Federal Transactions. This provision applies to solicitations expected to exceed $150,000.

(iii) 52.204-3, Taxpayer Identification. This provision applies to solicitations that do not include the provision at 52.204-7, System for Award Management.

(iv) 52.204-5, Women-Owned Business (Other Than Small Business). This provision applies to solicitations that—

(A) Are not set aside for small business concerns;

(B) Exceed the simplified acquisition threshold; and

(C) Are for contracts that will be performed in the United States or its outlying areas.

(v) 52.209-2; Prohibition on Contracting with Inverted Domestic Corporations--Representation.

(vi) 52.209-5; Certification Regarding Responsibility Matters. This provision applies to solicitations where the contract value is expected to exceed the simplified acquisition threshold.

(vii) 52.214-14, Place of Performance--Sealed Bidding. This provision applies to invitations for bids except those in which the place of performance is specified by the Government.

(viii) 52.215-6, Place of Performance. This provision applies to solicitations unless the place of performance is specified by the Government.

(ix) 52.219-1, Small Business Program Representations (Basic & Alternate I). This provision applies to solicitations when the contract will be performed in the United States or its outlying areas.

(A) The basic provision applies when the solicitations are issued by other than DoD, NASA, and the Coast Guard.

(B) The provision with its Alternate I applies to solicitations issued by DoD, NASA, or the Coast Guard.

(x) 52.219-2, Equal Low Bids. This provision applies to solicitations when contracting by sealed bidding and the contract will be performed in the United States or its outlying areas.

(xi) 52.222-22, Previous Contracts and Compliance Reports. This provision applies to solicitations that include the clause at 52.222-26, Equal Opportunity.

(xii) 52.222-25, Affirmative Action Compliance. This provision applies to solicitations, other than those for construction, when the solicitation includes the clause at 52.222-26, Equal Opportunity.

(xiii) 52.222-38, Compliance with Veterans' Employment Reporting Requirements. This provision applies to solicitations when it is anticipated the contract award will exceed the simplified acquisition threshold and the contract is not for acquisition of commercial items.

(xiv) 52.223-1, Biobased Product Certification. This provision applies to solicitations that require the delivery or specify the use of USDA-designated items; or include the clause at 52.223-2, Affirmative Procurement of Biobased Products Under Service and Construction Contracts.

(xv) 52.223-4, Recovered Material Certification. This provision applies to solicitations that are for, or specify the use of, EPA- designated items.

(xvi) 52.225-2, Buy American Certificate. This provision applies to solicitations containing the clause at 52.225-1.

(xvii) 52.225-4, Buy American--Free Trade Agreements--Israeli Trade Act Certificate. (Basic, Alternates I, II, and III.) This provision applies to solicitations containing the clause at 52.225- 3.

(A) If the acquisition value is less than $25,000, the basic provision applies.

(B) If the acquisition value is $25,000 or more but is less than $50,000, the provision with its Alternate I applies.

(C) If the acquisition value is $50,000 or more but is less than $79,507, the provision with its Alternate II applies.

(D) If the acquisition value is $79,507 or more but is less than $100,000, the provision with its Alternate III applies.

(xviii) 52.225-6, Trade Agreements Certificate. This provision applies to solicitations containing the clause at 52.225-5.

(xix) 52.225-20, Prohibition on Conducting Restricted Business Operations in Sudan--Certification. This provision applies to all solicitations.

(xx) 52.225-25, Prohibition on Contracting with Entities Engaging in Certain Activities or Transactions Relating to Iran—Representation and Certification. This provision applies to all solicitations.

(xxi) 52.226-2, Historically Black College or University and Minority Institution Representation. This provision applies to solicitations for research, studies, supplies, or services of the type normally acquired from higher educational institutions.

(2) The following certifications are applicable as indicated by the Contracting Officer:

[Contracting Officer check as appropriate.]

(i) 52.204-17, Ownership or Control of Offeror.

(ii) 52.222-18, Certification Regarding Knowledge of Child Labor for Listed End Products.

(iii) 52.222-48, Exemption from Application of the Service Contract Labor Standards to Contracts for Maintenance, Calibration, or Repair of Certain Equipment--Certification.

(iv) 52.222-52 Exemption from Application of the Service Contract Labor Standards to Contracts for Certain Services--Certification.

(v) 52.223-9, with its Alternate I, Estimate of Percentage of Recovered Material Content for EPA-Designated Products (Alternate I only).

(vi) 52.227-6, Royalty Information.

(A) Basic.

(B) Alternate I.

(vii) 52.227-15, Representation of Limited Rights Data and Restricted Computer Software.

(d) The offeror has completed the annual representations and certifications electronically via the SAM website accessed through https://www.acquisition.gov. After reviewing the SAM database information, the offeror verifies by submission of the offer that the representations and certifications currently posted electronically that apply to this solicitation as indicated in paragraph (c) of this provision have been entered or updated within the last 12 months, are current, accurate, complete, and applicable to this solicitation (including the business size standard applicable to the NAICS code referenced for this solicitation), as of the date of this offer and are incorporated in this offer by reference (see FAR 4.1201); except for the changes identified below [offeror to insert changes, identifying change by clause number, title, date]. These amended representation(s) and/or certification(s) are also incorporated in this offer and are current, accurate, and complete as of the date of this offer.

FAR Clause	Title	Date	Change
------	----------	------	------

Any changes provided by the offeror are applicable to this solicitation only, and do not result in an update to the representations and certifications posted on SAM.

(End of provision)

52.219-1 SMALL BUSINESS PROGRAM REPRESENTATIONS (OCT 2014)

(a) Definitions. As used in this provision--

Economically disadvantaged women-owned small business (EDWOSB) concern means a small business concern that is at least 51 percent directly and unconditionally owned by, and the management and daily business operations of which are controlled by, one or more women who are citizens of the United States and who are economically disadvantaged in accordance with 13 CFR part 127. It automatically qualifies as a women-owned small business concern eligible under the WOSB Program.

Service-disabled veteran-owned small business concern--

(1) Means a small business concern--

(i) Not less than 51 percent of which is owned by one or more service-disabled veterans or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more service-disabled veterans; and

(ii) The management and daily business operations of which are controlled by one or more service-disabled veterans or, in the case of a service-disabled veteran with permanent and severe disability, the spouse or permanent caregiver of such veteran.

(2) Service-disabled veteran means a veteran, as defined in 38 U.S.C. 101(2), with a disability that is service-connected, as defined in 38 U.S.C. 101(16).

Small business concern means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the criteria in 13 CFR Part 121 and the size standard in paragraph (b) of this provision.

Small disadvantaged business concern, consistent with 13 CFR 124.1002, means a small business concern under the size standard applicable to the acquisition, that--

(1) Is at least 51 percent unconditionally and directly owned (as defined at 13 CFR 124.105) by--

(i) One or more socially disadvantaged (as defined at 13 CFR 124.103) and economically disadvantaged (as defined at 13 CFR 124.104) individuals who are citizens of the United States, and

(ii) Each individual claiming economic disadvantage has a net worth not exceeding $750,000 after taking into account the applicable exclusions set forth at 13 CFR 124.104(c)(2); and

(2) The management and daily business operations of which are controlled (as defined at 13 CFR 124.106) by individuals who meet the criteria in paragraphs (1)(i) and (ii) of this definition.

Veteran-owned small business concern means a small business concern--

(1) Not less than 51 percent of which is owned by one or more veterans (as defined at 38 U.S.C. 101(2)) or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more veterans; and

(2) The management and daily business operations of which are controlled by one or more veterans.

Women-owned small business concern means a small business concern--

(1) That is at least 51 percent owned by one or more women; or, in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women; and

(2) Whose management and daily business operations are controlled by one or more women.

Women-owned small business (WOSB) concern eligible under the WOSB Program (in accordance with 13 CFR part 127), means a small business concern that is at least 51 percent directly and unconditionally owned by, and the management and daily business operations of which are controlled by, one or more women who are citizens of the United States.

(b)(1) The North American Industry Classification System (NAICS) code for this acquisition is 335311[insert NAICS code].

(2) The small business size standard is ___ --[insert size standard].

(3) The small business size standard for a concern which submits an offer in its own name, other than on a construction or service contract, but which proposes to furnish a product which it did not itself manufacture, is 500 employees.

(c) Representations. (1) The offeror represents as part of its offer that it [___] is, [X] is not a small business concern. (2) [Complete only if the offeror represented itself as a small business concern in paragraph (c)(1) of this provision.] The offeror represents that it [___] is, [X] is not, a small disadvantaged business concern as defined in 13 CFR 124.1002.

(3) [Complete only if the offeror represented itself as a small business concern in paragraph (c)(1) of this provision.] The offeror represents as part of its offer that it [___] is, [___] is not a women-owned small business concern.

(4) Women-owned small business (WOSB) concern eligible under the WOSB Program. [Complete only if the offeror represented itself as a women-owned small business concern in paragraph (c)(3) of this provision.] The offeror represents as part of its offer that--

(i) It [___] is, [X] is not a WOSB concern eligible under the WOSB Program, has provided all the required documents to the WOSB Repository, and no change in circumstances or adverse decisions have been issued that affects its eligibility; and

(ii) It [___] is, [X] is not a joint venture that complies with the requirements of 13 CFR part 127, and the

representation in paragraph (c)(4)(i) of this provision is accurate for each WOSB concern eligible under the WOSB Program participating in the joint venture. [The offeror shall enter the name or names of the WOSB concern eligible under the WOSB Program and other small businesses that are participating in the joint venture: ___ --.] Each WOSB concern eligible under the WOSB Program participating in the joint venture shall submit a separate signed copy of the WOSB representation.

(5) Economically disadvantaged women-owned small business (EDWOSB) concern. [Complete only if the offeror represented itself as a women-owned small business concern eligible under the WOSB Program in (c)(4) of this provision.] The offeror represents as part of its offer that--

(i) It [___] is, [_X_] is not an EDWOSB concern eligible under the WOSB Program, has provided all the required documents to the WOSB Repository, and no change in circumstances or adverse decisions have been issued that affects its eligibility; and

(ii) It [___] is, [_X_] is not a joint venture that complies with the requirements of 13 CFR part 127, and the representation in paragraph (c)(5)(i) of this provision is accurate for each EDWOSB concern participating in the joint venture. [The offeror shall enter the name or names of the EDWOSB concern and other small businesses that are participating in the joint venture: ___ --.] Each EDWOSB concern participating in the joint venture shall submit a separate signed copy of the EDWOSB representation.

(6) [Complete only if the offeror represented itself as a small business concern in paragraph (c)(1) of this provision.] The offeror represents as part of its offer that it [___] is, [___] is not a veteran-owned small business concern.

(7) [Complete only if the offeror represented itself as a veteran-owned small business concern in paragraph (c)(6) of this provision.] The offeror represents as part of its offer that it [___] is, [___] is not a service-disabled veteran-owned small business concern.

(8) [Complete only if the offeror represented itself as a small business concern in paragraph (c)(1) of this provision.] The offeror represents, as part of its offer, that--

(i) It [___] is, [_X_] is not a HUBZone small business concern listed, on the date of this representation, on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration, and no material changes in ownership and control, principal office, or HUBZone employee percentage have occurred since it was certified in accordance with 13 CFR Part 126; and

(ii) It [___] is, [_X_] is not a HUBZone joint venture that complies with the requirements of 13 CFR Part 126, and the representation in paragraph (c)(8)(i) of this provision is accurate for each HUBZone small business concern participating in the HUBZone joint venture. [The offeror shall enter the names of each of the HUBZone small business concerns participating in the HUBZone joint venture: ___ --.] Each HUBZone small business concern participating in the HUBZone joint venture shall submit a separate signed copy of the HUBZone representation.

(d) Notice.

(1) If this solicitation is for supplies and has been set aside, in whole or in part, for small business concerns, then the clause in this solicitation providing notice of the set-aside contains restrictions on the source of the end items to be furnished.

(2) Under 15 U.S.C. 645(d), any person who misrepresents a firm's status as a business concern that is small, HUBZone small, small disadvantaged, service-disabled veteran-owned small, economically disadvantaged women-owned small, or women-owned small eligible under the WOSB Program in order to obtain a contract to be awarded under the preference programs established pursuant to section 8, 9, 15, 31, and 36 of the Small Business Act or any other provision of Federal law that specifically references section 8(d) for a definition of program eligibility, shall—

(i) Be punished by imposition of fine, imprisonment, or both;

(ii) Be subject to administrative remedies, including suspension and debarment; and

(iii) Be ineligible for participation in programs conducted under the authority of the Act.

(End of provision)

52.219-1 SMALL BUSINESS PROGRAM REPRESENTATIONS (OCT 2014) - ALTERNATE I (MAY 2014)

(a)(1) The North American Industry Classification System (NAICS) code for this acquisition is ___ (insert NAICS code).

(2) The small business size standard is ___ (insert size standard).

(3) The small business size standard for a concern which submits an offer in its own name, other than on a construction or service contract, but which proposes to furnish a product which it did not itself manufacture, is 500 employees.

(b) Representations. (1) The offeror represents as part of its offer that it (___) is, (_X_) is not a small business concern.

(2) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents, for general statistical purposes, that it (___) is, (___) is not a small disadvantaged business concern as defined in 13 CFR 124.1002.

(3) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents as part of its offer that it (___) is, (___) is not a women-owned small business concern.

(4) Women-owned small business (WOSB) concern eligible under the WOSB Program. [Complete only if the offeror represented itself as a women-owned small business concern in paragraph (b)(3) of this provision.] The offeror represents as part of its offer that--

(i) It (___) is, (_X_) is not a WOSB concern eligible under the WOSB Program, has provided all the required documents to the WOSB Repository, and no change in circumstances or adverse decisions have been issued that affects its eligibility; and

(ii) It [___] is, [_X_] is not a joint venture that complies with the requirements of 13 CFR part 127, and the representation in paragraph (b)(4)(i) of this provision is accurate for each WOSB concern eligible under the WOSB Program participating in the joint venture. [The offeror shall enter the name or names of the WOSB concern eligible under the WOSB Program and other small businesses that are participating in the joint venture: ---- ___ ------.] Each WOSB concern eligible under the WOSB Program participating in the joint venture shall submit a separate signed copy of the WOSB representation.

(5) Economically disadvantaged women-owned small business (EDWOSB) concern. [Complete only if the offeror represented itself as a women-owned small business concern eligible under the WOSB Program in (b)(4) of this provision.] The offeror represents as part of its offer that--

(i) It (___) is, (_X_) is not an EDWOSB concern eligible under the WOSB Program, has provided all the required documents to the WOSB Repository, and no change in circumstances or adverse decisions have been issued that affects its eligibility; and

(ii) It [___] is, [_X_] is not a joint venture that complies with the requirements of 13 CFR part 127, and the representation in paragraph (b)(5)(i) of this provision is accurate for each EDWOSB concern participating in the joint venture. [The offeror shall enter the name or names of the EDWOSB concern and other small businesses that are participating in the joint venture: ----- ___ -----.] Each EDWOSB concern participating in the joint venture shall submit a separate signed copy of the EDWOSB representation.

(6) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents as part of its offer that it (___) is, (___) is not a veteran-owned small business concern.

(7) (Complete only if the offeror represented itself as a veteran-owned small business concern in paragraph (b)(6) of this provision.) The offeror represents as part of its offer that it (___) is, (___) is not a service-disabled veteran-owned small business concern.

(8) [Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.] The offeror represents, as part of its offer, that--

(i) It (___) is, (_X_) is not a HUBZone small business concern listed, on the date of this representation, on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration, and no material change in ownership and control, principal office, or HUBZone employee percentage has occurred since it was certified by the Small Business Administration in accordance with 13 CFR part 126; and

(ii) It (___) is, (_x_) is not a joint venture that complies with the requirements of 13 CFR part 126, and the representation in paragraph (b)(8)(i) of this provision is accurate for the HUBZone small business concern or concerns that are participating in the joint venture. (The offeror shall enter the name or names of the HUBZone small business concern or concerns that are participating in the joint venture: ___ .) Each HUBZone small business concern participating in the joint venture shall submit a separate signed copy of the HUBZone representation.

(9) (Complete if offeror represented itself as disadvantaged in paragraph (b)(2) of this provision.) The offeror shall check the category in which its ownership falls:

___ Black American.

___ Hispanic American.

___ Native American (American Indians, Eskimos, Aleuts, or Native Hawaiians).

___ Asian-Pacific American (persons with origins from Burma, Thailand, Malaysia, Indonesia, Singapore, Brunei, Japan, China, Taiwan, Laos, Cambodia (Kampuchea), Vietnam, Korea, The Philippines, Republic of Palau, Republic of the Marshall Islands, Federated States of Micronesia, the Commonwealth of the Northern Mariana Islands, Guam, Samoa, Macao, Hong Kong, Fiji, Tonga, Kiribati, Tuvalu, or Nauru).

___ Subcontinent Asian (Asian-Indian) American (persons with origins from India, Pakistan, Bangladesh, Sri Lanka, Bhutan, the Maldives Islands, or Nepal).

___ Individual/concern, other than one of the preceding.

(c) Definitions. As used in this provision--

Service-disabled veteran-owned small business concern--

(1) Means a small business concern--

(i) Not less than 51 percent of which is owned by one or more service-disabled veterans or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more service-disabled veterans; and

(ii) The management and daily business operations of which are controlled by one or more service-disabled veterans or, in the case of a service-disabled veteran with permanent and severe disability, the spouse or permanent caregiver of such veteran.

(2) Service-disabled veteran means a veteran, as defined in 38 U.S.C. 101(2), with a disability that is service-connected, as defined in 38 U.S.C. 101(16).

"Small business concern," means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the criteria in 13 CFR Part 121 and the size standard in paragraph (a) of this provision.

Veteran-owned small business concern means a small business concern--

(1) Not less than 51 percent of which is owned by one or more veterans (as defined at 38 U.S.C. 101(2)) or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more veterans; and

(2) The management and daily business operations of which are controlled by one or more veterans.

"Women-owned small business concern," means a small business concern --

(1) That is at least 51 percent owned by one or more women or, in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women; or

(2) Whose management and daily business operations are controlled by one or more women.

(d) Notice.

(1) If this solicitation is for supplies and has been set aside, in whole or in part, for small business concerns, then the clause in this solicitation providing notice of the set-aside contains restrictions on the source of the end items to be furnished.

(2) Under 15 U.S.C. 645(d), any person who misrepresents a firm's status as a small, HUBZone small, small disadvantaged, or women-owned small business concern in order to obtain a contract to be awarded under the preference programs established pursuant to section 8(a), 8(d), 9, or 15 of the Small Business Act or any other provision of Federal law that specifically references section 8(d) for a definition of program eligibility, shall--

(i) Be punished by imposition of fine, imprisonment, or both;

(ii) Be subject to administrative remedies, including suspension and debarment; and

(iii) Be ineligible for participation in programs conducted under the authority of the Act.

(End of provision)

252.204-7007 ALTERNATE A, ANNUAL REPRESENTATIONS AND CERTIFICATIONS (JAN 2015)

Substitute the following paragraphs (d) and (e) for paragraph (d) of the provision at FAR 52.204-8:

(d)(1) The following representations or certifications in the System for Award Management (SAM) database are applicable to this solicitation as indicated:

(i) 252.209-7003, Reserve Officer Training Corps and Military Recruiting on Campus--Representation. Applies to all solicitations with institutions of higher education.

(ii) 252.216-7008, Economic Price Adjustment--Wage Rates or Material Prices Controlled by a Foreign Government. Applies to solicitations for fixed-price supply and service contracts when the contract is to be performed wholly or in part in a foreign country, and a foreign government controls wage rates or material prices and may during contract performance impose a mandatory change in wages or prices of materials.

(iii) 252.222-7007, Representation Regarding Combating Trafficking in Persons, as prescribed in 222.1771. Applies to solicitations with a value expected to exceed the simplified acquisition threshold.

(iv) 252.225-7042, Authorization to Perform. Applies to all solicitations when performance will be wholly or in part in a foreign country.

(v) 252.225-7049, Prohibition on Acquisition of Commercial Satellite Services from Certain Foreign Entities--Representations. Applies to solicitations for the acquisition of commercial satellite services.

(vi) 252.225-7050, Disclosure of Ownership or Control by the Government of a Country that is a State Sponsor of Terrorism. Applies to all solicitations expected to result in contracts of $150,000 or more.

(vii) 252.229-7012, Tax Exemptions (Italy)--Representation. Applies to solicitations when contract performance will be in Italy.

(viii) 252.229-7013, Tax Exemptions (Spain)--Representation. Applies to solicitations when contract performance will be in Spain.

(ix) 252.247-7022, Representation of Extent of Transportation by Sea. Applies to all solicitations except those for direct purchase of ocean transportation services or those with an anticipated value at or below the simplified acquisition threshold.

(2) The following representations or certifications in SAM are applicable to this solicitation as indicated by the Contracting Officer: [Contracting Officer check as appropriate.]

____ (i) 252.209-7002, Disclosure of Ownership or Control by a Foreign Government.

____ (ii) 252.225-7000, Buy American--Balance of Payments Program Certificate.

____ (iii) 252.225-7020, Trade Agreements Certificate.

____ Use with Alternate I.

____ (iv) 252.225-7031, Secondary Arab Boycott of Israel.

____ (v) 252.225-7035, Buy American--Free Trade Agreements--Balance of Payments Program Certificate.

____ Use with Alternate I.

____ Use with Alternate II.

____ Use with Alternate III.

____ Use with Alternate IV.

____ Use with Alternate V.

(e) The offeror has completed the annual representations and certifications electronically via the SAM Web site at https://www.acquisition.gov/. After reviewing the SAM database information, the offeror verifies by submission of the offer that the representations and certifications currently posted electronically that apply to this solicitation as indicated in FAR 52.204-8(c) and paragraph (d) of this provision have been entered or updated within the last 12 months, are current, accurate, complete, and applicable to this solicitation (including the business size standard applicable to the NAICS code referenced for this solicitation), as of the date of this offer, and are incorporated in this offer by reference (see FAR 4.1201); except for the changes identified below ____ [offeror to insert changes, identifying change by provision number, title, date]. These amended representation(s) and/or certification(s) are also incorporated in this offer and are current, accurate, and complete
as of the date of this offer.

FAR/DFARS Clause #	Title	Date	Change

Any changes provided by the offeror are applicable to this solicitation only, and do not result in an update to the representations and certifications located in the SAM database.

(End of provision)

PART II.

PRICES

(b)(4)

Section B - Supplies or Services and Prices

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001					(b)(4)

Design and Fabrication of MEHPS
FFP
Design and Fabrication in accordance with paragraphs 3.0, 3.1, 3.3 through 3.8, 3.11, and the Performance Specification Sheets (PSpecs) for MEHPS-L and MEHPS-M.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001AA		4	Each	(b)(4)	(b)(4)

Design and Fabrication-Light MEHPS
FFP
Design and Fabrication of the Light Systems in accordance with paragraphs 3.0, 3.1, 3.3 through 3.8, and 3.11.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001AB		4	Each	(b)(4)	(b)(4)

Design and Fabrication-Medium MEHPS
FFP
Design and Fabrication of the Medium Systems in accordance with paragraphs 3.0, 3.1, 3.3 through 3.8, and 3.11.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0002		1	Each	(b)(4)	(b)(4)

Testing and Verification
FFP
Testing and Verification in accordance with paragraph 3.8 of the Statement of Work.

FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003					

Contract Data Requirements List
FFP
Contract Data Requirements List
FOB: Destination

(b)(4)

NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AA		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM B001
FFP
B001 RECEIPT OF GOVERNMENT MATERIEL REPORT IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.1.1.

FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AB		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM B002
FFP
B002 GOVERNMENT FURNISHED INFORMATION DEFICIENCY REPORT IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.1.2.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT		AMOUNT
0003AC		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM A015
FFP
A015 TECHNICAL REPORT - STUDY/SERVICES IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.9.1.1.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT		AMOUNT
0003AD		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM A016
FFP
A016 TECHNICAL REPORT - STUDY/SERVICES IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.9.1.2.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AE		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM B003
FFP
B003 CONFERENCE AGENDA IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.2.1.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT		AMOUNT
0003AF		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM B004
FFP
B004 CONFERENCE MINUTES IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.2.1.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AG		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM A001
FFP
A001 DESIGN REVIEW INFORMATION PACKAGE (PDR) IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.3.1.1.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AH		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM A002
FFP
A002 DESIGN REVIEW INFORMATION PACKAGE (CDR) IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.3.1.2.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AJ		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM A003
FFP
A003 DESIGN REVIEW INFORMATION PACKAGE (TRR) IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.3.1.3.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AK		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM A004
FFP
A004 TECHNICAL REPORT - STUDY SERVICES IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.3.2.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AL		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM A005
FFP
A005 PRODUCIBILITY ANALYSIS REPORT IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.4.1.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT		
0003AM		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM A006
FFP
A006 SAFETY ASSESSMENT REPORT (SAR) IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.5.1.2.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AN		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM A007
FFP
A007 SYSTEM SAFETY HAZARD ANALYSIS (SSHA) REPORT IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.5.1.4.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AP		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM A008
FFP
A008 TECHNICAL REPORT-STUDY/SERVICES IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.5.1.6.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AQ		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM A009
FFP
A009 TECHNICAL REPORT - STUDY/SERVICES IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.5.1.7.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT		AMOUNT
0003AR		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM A010
FFP
A010 TECHNICAL REPORT-STUDY/SERVICES IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.5.2.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AS		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM A011
FFP
A011 INTERFACE CONTROL DOCUMENT IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.6.1.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AT		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM A012
FFP
A012 DEVELOPMENTAL DESIGN DRAWINGS/MODELS AND ASSOCIATED LISTS IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.7.1.
FOB: Destination

NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AU		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM A013
FFP
A013 COMMERCIAL DRAWINGS/MODELS AND ASSOCIATED LISTS IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.7.2.
FOB: Destination

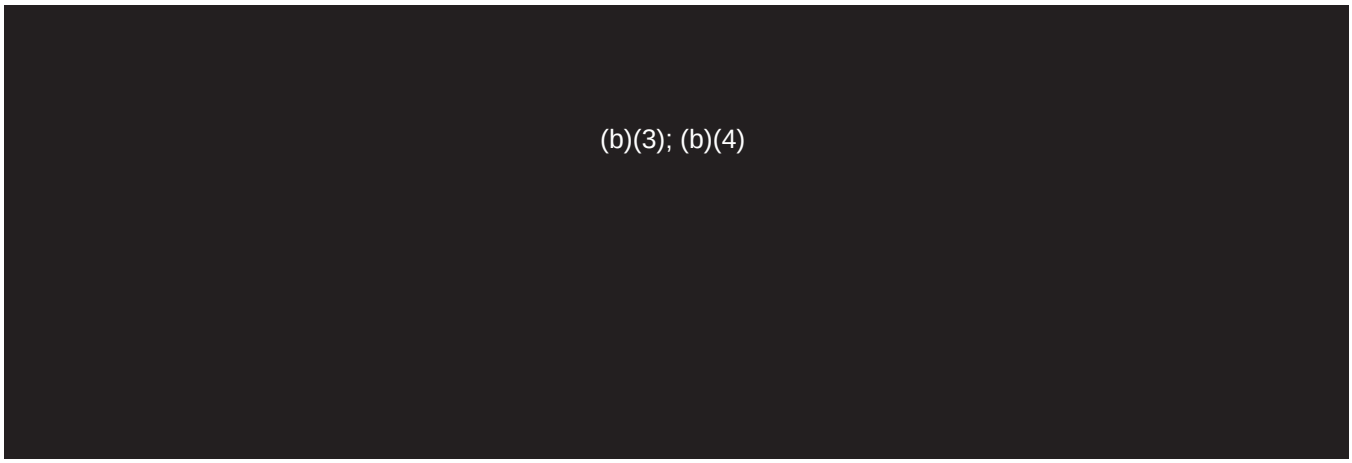
NET AMT (b)(4)

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003AV		1	Each	(b)(4)	(b)(4)

CDRL DATA ITEM A014
FFP
A014 PRODUCT DRAWINGS/MODELS AND ASSOCIATED LISTS IN ACCORDANCE WITH STATEMENT OF WORK PARAGRAPH 3.7.3.
FOB: Destination

NET AMT (b)(4)

ORGANIZATION



Cognizant Government Offices

Corporate/Divisional Administrative Contracting Officer Group

DCMA-KDM/M. Nottingham
700 ROBBINS AVENUE, BUILDING #2D
PHILADELPHIA, PENNSYLVANIA 19111
MARY A. NOTTINGHAM
Divisional Administrative Contracting Officer
215 697-9818

Donald Geramita (DCMA QAR)
21 South Street
Danbury, CT 06810
203-798-3195

DCAA (Greater Connecticut Branch Office)
6 Armstrong Road
Shelton, CT
203-402-4628

DFAS
DEF FIN AND ACCOUNTING SVC BSM
P O BOX 182317
COLUMBUS OH 43218-2317 USA

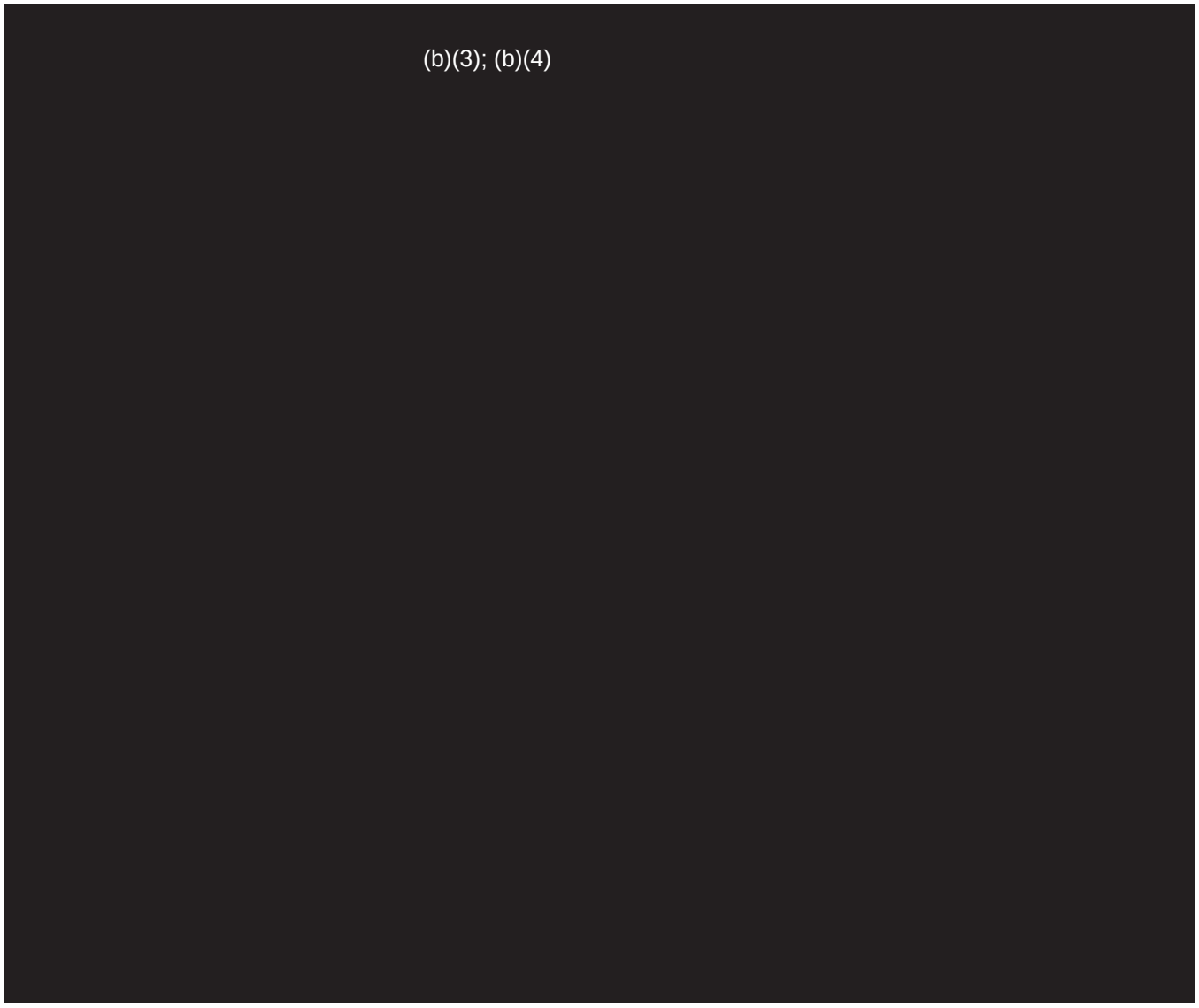
PART III. PAST PERFORMANCE

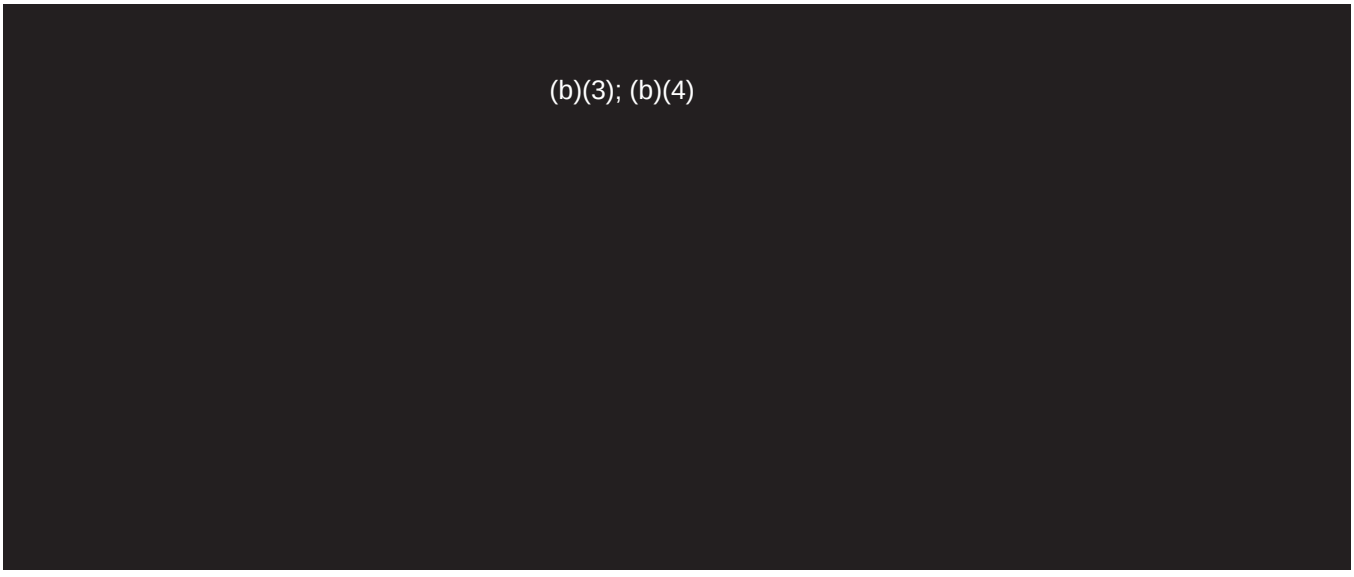
1. Introduction

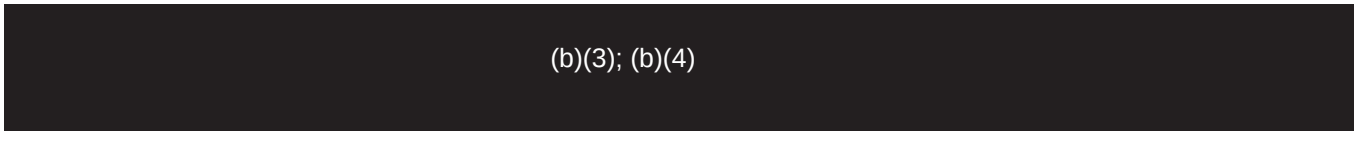
(b)(3); (b)(4)

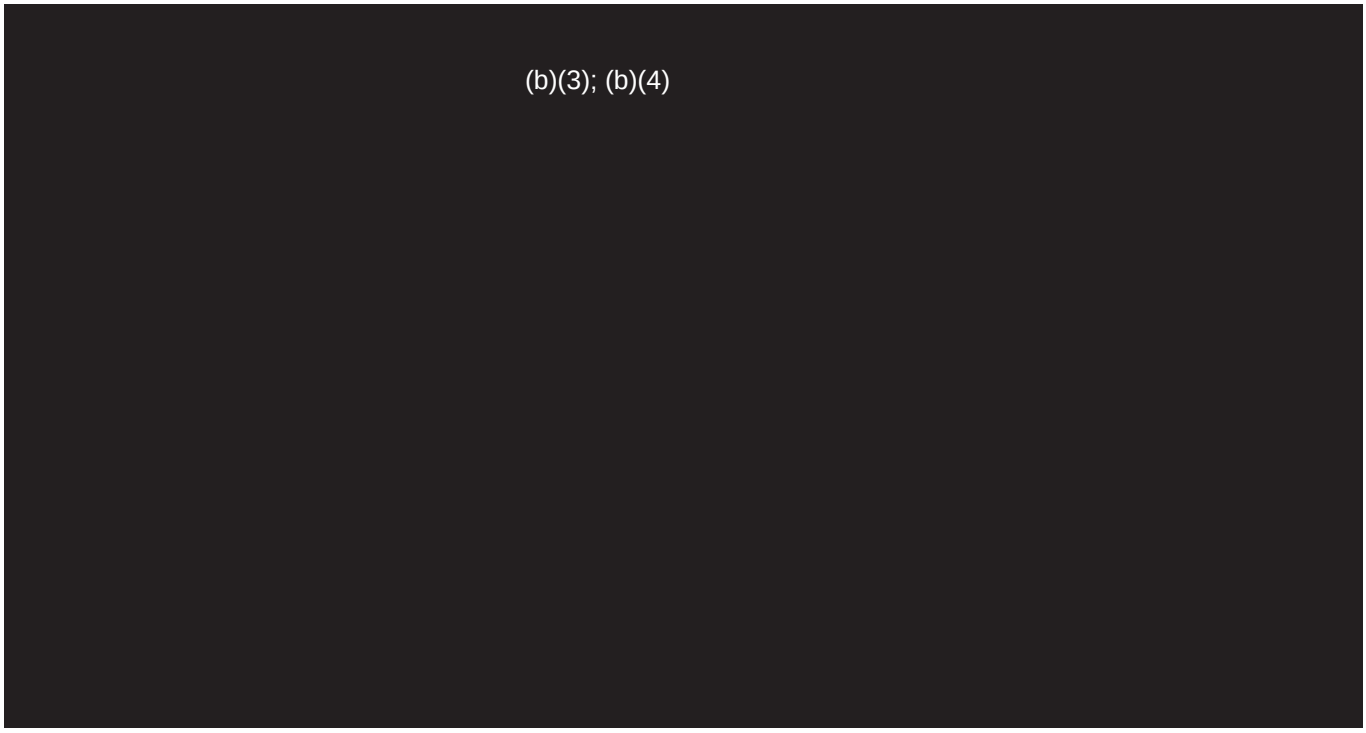
(b)(3); (b)(4)

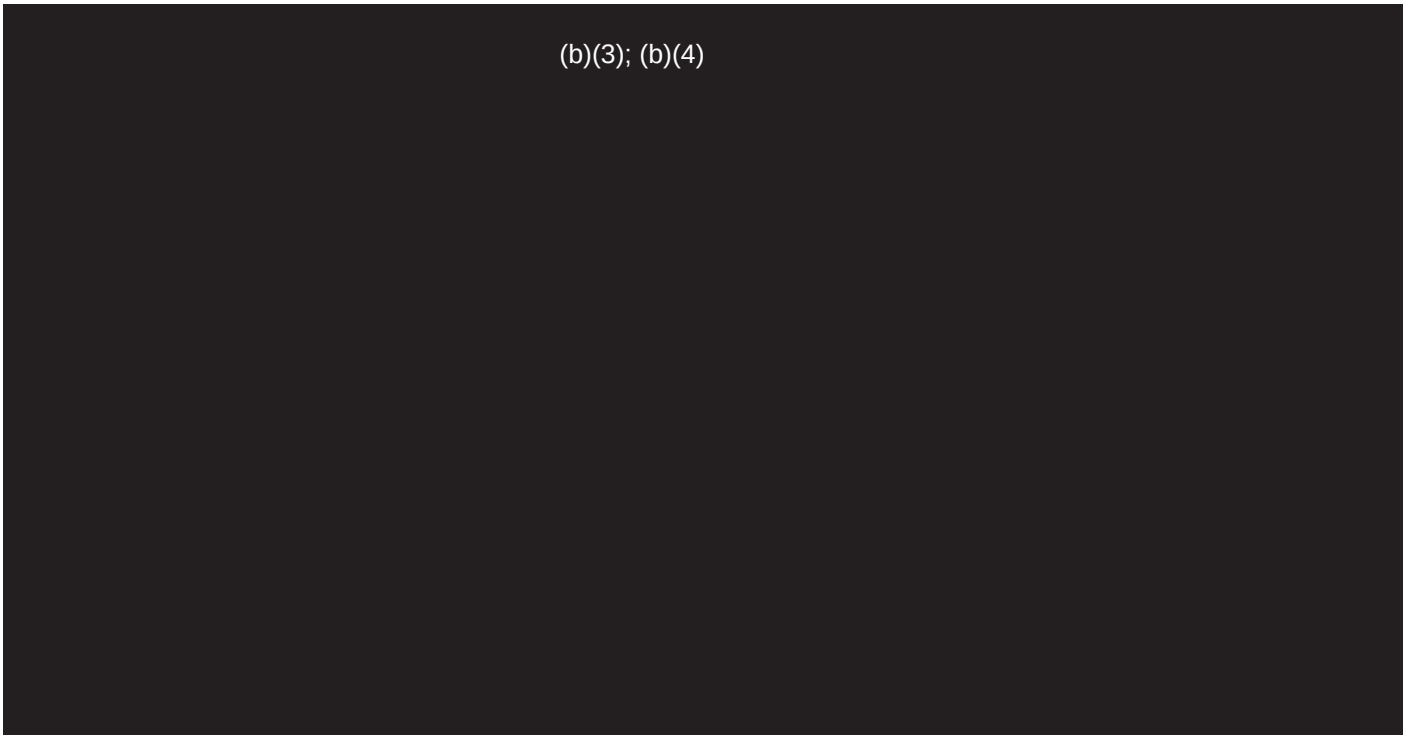
(b)(3); (b)(4)


(b)(3); (b)(4)


(b)(3); (b)(4)


(b)(3); (b)(4)


(b)(3); (b)(4)


(b)(3); (b)(4)


(b)(3); (b)(4)

PART IV. SMALL BUSINESS PARTICIPATION

DRS Consolidated Controls, Inc.

141 North Avenue
Bridgeport, CT 06606

Small Business Subcontract Plan

October 2015

For:

MARCORSYSCOM
Customer

15B2160R
Proposal/Contract #

695-00-01 / 696-00-01
Part #

October 12, 2015
Date

(b)(3); (b)(4)

(b)(3); (b)(4)

(b)(3); (b)(4)

In accordance with FAR 52.219-9(d) 43 U.S.C. 1626 (1) (i) through (ii) and (2): Set forth below are the goals, expressed in terms of percentage of total planned U.S. domestic Subcontracting dollars, for the use of Small Business, Small Disadvantaged Business, Veteran-Owned Small Business, Service Disabled Veteran-Owned Small Business, HUBZone Small Business, Women-Owned Small Business concerns and Historically Black Colleges & Universities and Minority Institutions, and Alaska Native Corporation (ANC) or Indian tribe.

These represent the total dollars planned for subcontracting by the contractor, DRS Consolidated Controls, Inc. - hereinafter referred to as "DRS."

(b)(3); (b)(4)

Goals for the specifics projects are listed below:

(b)(3); (b)(4)

(b)(3); (b)(4)

MARCORSYSCOM / 15B2160R				
Business Concerns	Whole Dollars	Percent	Total Contract Value (potential)	Percent
Small Business Concerns (including ANC and Indian tribes)	(b)(3); (b)(4)			
Large Business Concerns				
Total Subcontract				
Small Disadvantaged Business Concerns				
Women-Owned Small Business Concerns				
HUB Zone Small Business Concerns				
Veteran-Owned Small Business Concerns				
Service-Disabled Veteran Small Business Concerns				

(b)(3); (b)(4)

(b)(3); (b)(4)

(b)(3); (b)(4)

(b)(3); (b)(4)

(b)(3); (b)(4)

(b)(3); (b)(4)

(b)(3); (b)(4)

(b)(3); (b)(4)

(b)(3); (b)(4)

(b)(3); (b)(4)

(b)(3); (b)(4)

(b)(3); (b)(4)

(b)(3); (b)(4)

(b)(3); (b)(4)

Approved by:

(b)(6)

10/12/15
Date

Small Business Liaison Officer

(b)(3); (b)(4)

JUST A PAGE NUMBER HOLDER

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

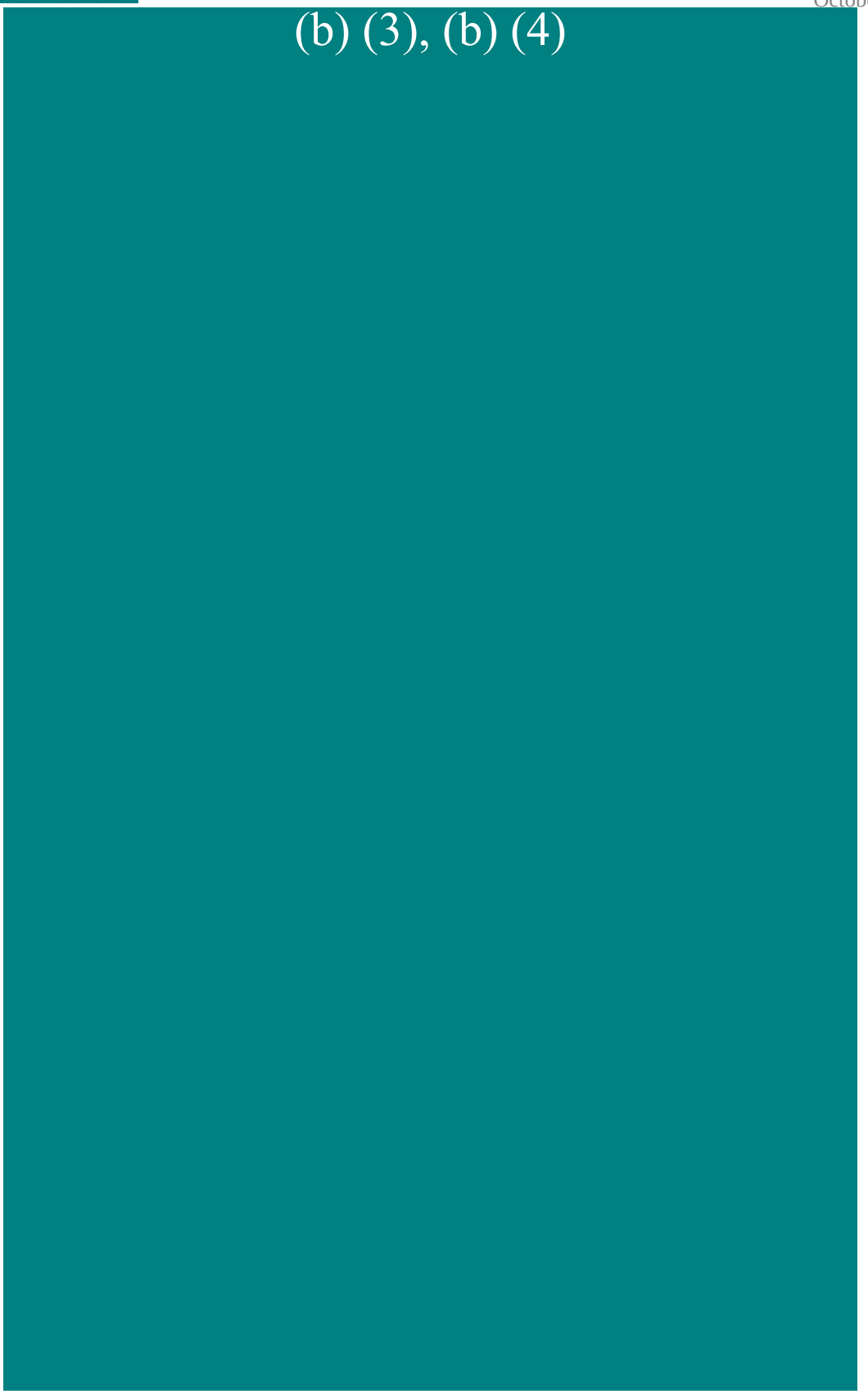
(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)



UEC Electronics, LLC's (UEC) Mobile Electric Hybrid Power Sources (MEHPS) offering builds on over five (5) years of collaborative development with MARCORSYSCOM on both the Ground Renewable Expeditionary Energy Network System (GREENS) and the Medium Hybrid Expeditionary Energy System (MHEES). Our efforts on these two programs provide a strong basis of knowledge and experience to develop the MEHPS solution increasing the government's total return on investment. As a member of the GREENS and MHEES integrated product teams (IPTs), UEC has a firm understanding of the technical requirements and risks as well as an unwavering commitment to the expeditionary power mission.

Our rapidly deployable, user-friendly, and interoperable MEHPS solution builds on UEC's lessons learned from years of experience with the USMC hybrid energy systems and offers even greater modularity and scalability than MHEES with a central focus on fuel consumption and delivering clean, uninterrupted power for all mission scenarios. Our MEHPS design minimizes generator fuel consumption and maintenance, optimizes renewable energy collection, provides the best-value solution to high density energy storage, and supplies the end user with multiple power distribution options. Our design pays considerable attention to the inverter and energy storage technologies that significantly affect the success of the system. Our approach to the inverter and energy storage described in this narrative represents a significant advantage to the government.

Figure 1. UEC Integral to the Expeditionary Power IPT

(b) (3), (b) (4)

(b) (3), (b) (4)

1.2 Why UEC?

UEC is an award winning business with over twenty (20) years of experience in design and manufacturing efforts similar in scope and complexity to MEHPS. UEC offers a best value and low risk MEHPS solution due to our expeditionary power past experience, independent research and development, and mission/customer focus.

1.2.1 Expeditionary Power Past Experience

Over the last five (5) years, we have consistently demonstrated a focused commitment to MARCORSYSCOM and the expeditionary power mission. Our past performance indicates our dedication to customer service, support, and satisfaction. Customers choose UEC when they expect technical superiority and unwavering customer support.

UEC has over 50 years combined experience in Energy Storage and Power Management including chemistry selection, battery management system (BMS) design, State of Charge (SOC)/State of Health (SOH) algorithms, energy system safety, and reliability. UEC possesses a unique blend of corporate experience, capabilities, and facilities. We will perform the scope of work organically with no need to subcontract or team with other entities to cover all requirements. Our capability to cover the entire scope offers reduced schedule risk as well as enhances the stability of the technology road map.

Figure 2. UEC's Long Term Commitment to the Expeditionary Power Mission

(b) (3), (b) (4)

Expeditionary power is our Primary Mission and not a secondary market focus. In 2015, we hired an Electrical Engineering PhD specializing in inverter technology for the sole purpose of solving expeditionary power inverter challenges. We also hired two battery management subject matter experts with years of experience designing energy control modules for various industries.

In 2015, UEC further strengthened our presence in the Energy Collection, Storage, and Power Management market space through a strategic consolidation with Electric Fuel Battery Corporation (EFB). We relocated EFB engineering and operations to UEC's facilities in

Hanahan, SC. This consolidation allows UEC to provide expanded and comprehensive Energy Storage and Power Management design, integration, and manufacturing. EFB brought expertise in developing innovative portable power solutions for the military. For example, EFB's Zinc Air Battery received the 2003 U.S. Army Greatest Inventions from the Army Material Command. EFB also received the 2010 U.S. Army Greatest Inventions for the Soldier Worn Integrated Power Equipment System (SWIPES™).

(b) (3), (b) (4)

1.3 Cross Reference Guidance

For ease of review, Section 3.0 mirrors the Performance Specification numbering unless otherwise noted. The Technical Volume also includes a cross-reference matrix detailing each requirement to the paragraph where we provide our response. Table 3 provides a high-level cross reference to Section L and M Factors and Subfactors. Throughout this volume, we will refer to the Section C - Description and Specifications, Statement of Work MEHPS as SOW. We will refer to Section J, Attachment 2 - Performance Specification as PSpec for brevity.

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

(b) (3), (b) (4)

9 Abbreviation and Acronym List

Acronym	Description
AC	Alternating Current
ACC-APG	Aberdeen Proving Grounds
AISPCA	Advanced Integrated Solar Panel Case Assembly
AMMPS	Advanced Medium Mobile Power Source
AoA	Analysis of Alternatives
BII	Basic Issue Item
BIT	Built In Test
BMS	Battery Management System
BMU	Battery Management Unit
BOM	Bill Of Material
CAD	Computer Aided Design
CAGE	Commercial And Government Entity
CAN	Controller Area Network
CCA	Circuit Card Assembly
CDR	Critical Design Review
CDRL	Contract Data Requirements List
CERDEC	US Army Communications-Electronics Research, Development, and Engineering Center
CID	Current Interrupt Device
CONUS	CONtinental United States
DC	Direct Current
DOD	Department of Defense
EFB	Electronic Fuel Battery Corporation
EMI	ElectroMagnetic Interference
ERP	Enterprise Resource Planning
ESD	ElectroStatic Discharge
ESOH	Environmental, Safety, Occupational Health
EVMS	Earned Value Management System
FAT	First Article Test
FMECA	failure modes effects and criticality analysis
FSR	Field Service Representative
GFP	Government Furnished Parts
GPD	Gallons Per Day
GPH	Gallons Per Hour
GREENS	Ground Renewable Expeditionary Energy Network System
HALT	Highly Accelerated Life Testing
HASS	Highly Accelerated System Screening
HEDBS	High Energy Density Battery System
HMI	Human-Machine Interface
HSI	Human Systems Integration
IAW	In Accordance With

ICD	Interface Control Document
IDF	Israel Defense Forces
IMS	Integrated Master Schedule
IPR	In Progress Reviews
IPT	Integrated Product (development) Team
IPT	Integrated Product Team
IRAD	Independent Research and Development
ISPCA	Integrated Solar Panel Case Assembly
IUID	Item Unique IDentification
LAV	Light Armored Vehicle
LCO	Lithium Cobalt Oxide
LED	Light Emitting Diode
LFB	Large Format Battery
LFP	Lithium Iron Phosphate
LIB	Lithium Ion Battery
LLC	Limited Liability Corporation
LRU	Line Replaceable Unit
LTT-MCC	Light Tactical Trailer - Marine Corps Chassis
MARCORSYSCOM	MARine CORps SYStems COMmand
MCU	Microcontroller
MEHPS	Mobile Electric Hybrid Power Sources
MHEES	Medium Hybrid Expeditionary Energy System
MOPP	Mission Oriented Protective Posture
MPPT	Maximum Power Point Tracking
MRT	Mean Repair Time
MTBEFF	Mean Time Between Essential Function Failue
MTTR	Mean Time To Repair
NEPA	National Environmental Policy Act
NIE	Network Integration Exercise
NSN	National Stock Number
OCV	Open Circuit Voltage
PAM	Portable Array Module
PCA	Physical Configuration Audit
PCC	Point of Common Coupling
PDR	Preliminary Design Review
PDU	Power Distribution Unit
PM	Program Manager
PMI	Project Management Institute
PMP	Program Management Plan
PN	Part Number
POC	Point Of Contact
PWM	Pulse Width Modulation
QMS	Quality Management System

QTY	Quantity
RFA	Requests for Action
RFI	Request For Information
RTM	Requirements Traceability Matrix
RTVM	Requirements Traceability and Verification Matrix
SN	Serial Number
SOC	State of Charge
SOH	State of Health
SOW	Statement Of Work
TBD	To Be Determined
TDP	Technical Data Package
TI	Texas Instruments
TM	Technical Manual
TQG	Tactical Quiet Generator
TRR	Test Readiness Review
UEC	UEC Electronics, LLC
UI	User Interface
USB	Universal Serial Bus
USMC	United States Marine Corps
VAC	Voltage Alternating Current
VDC	Voltage Direct Current
WBS	Work Breakdown Structure
WIP	Work In Progress